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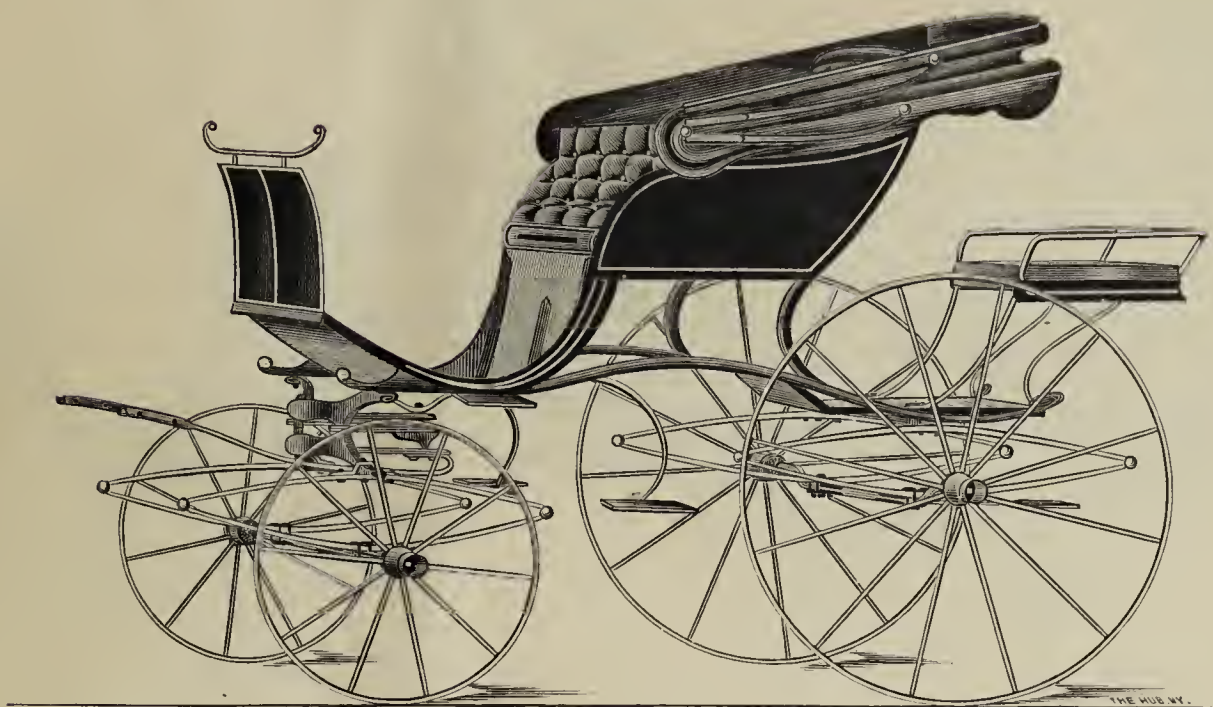


Plate No. 3. SPIDER PHAETON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 20.

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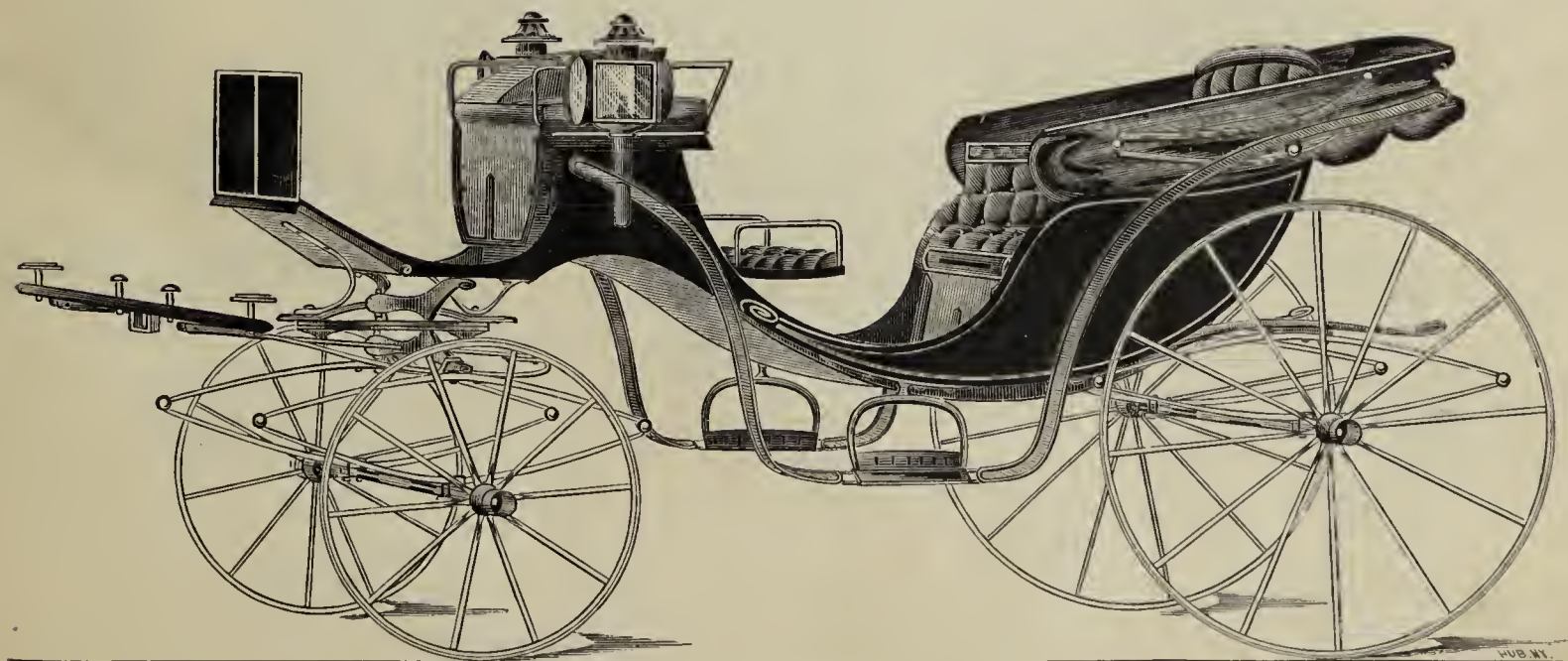


Plate No. 4. FULL-SWEEP CABRIOLET.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 20.

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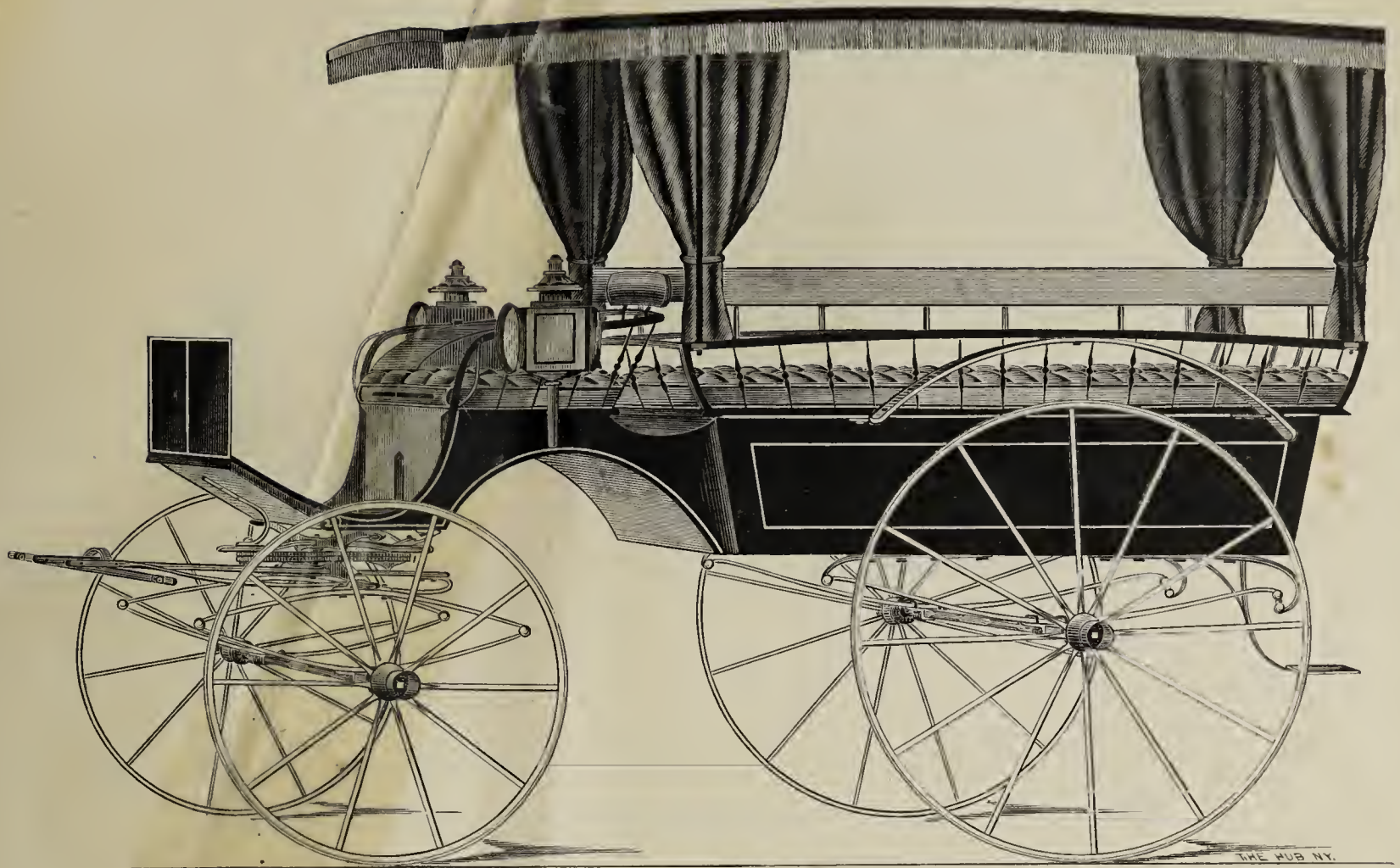


Plate No. 5. TEN-PASSENGER WAGONET, WITH CANOPY TOP.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 20.

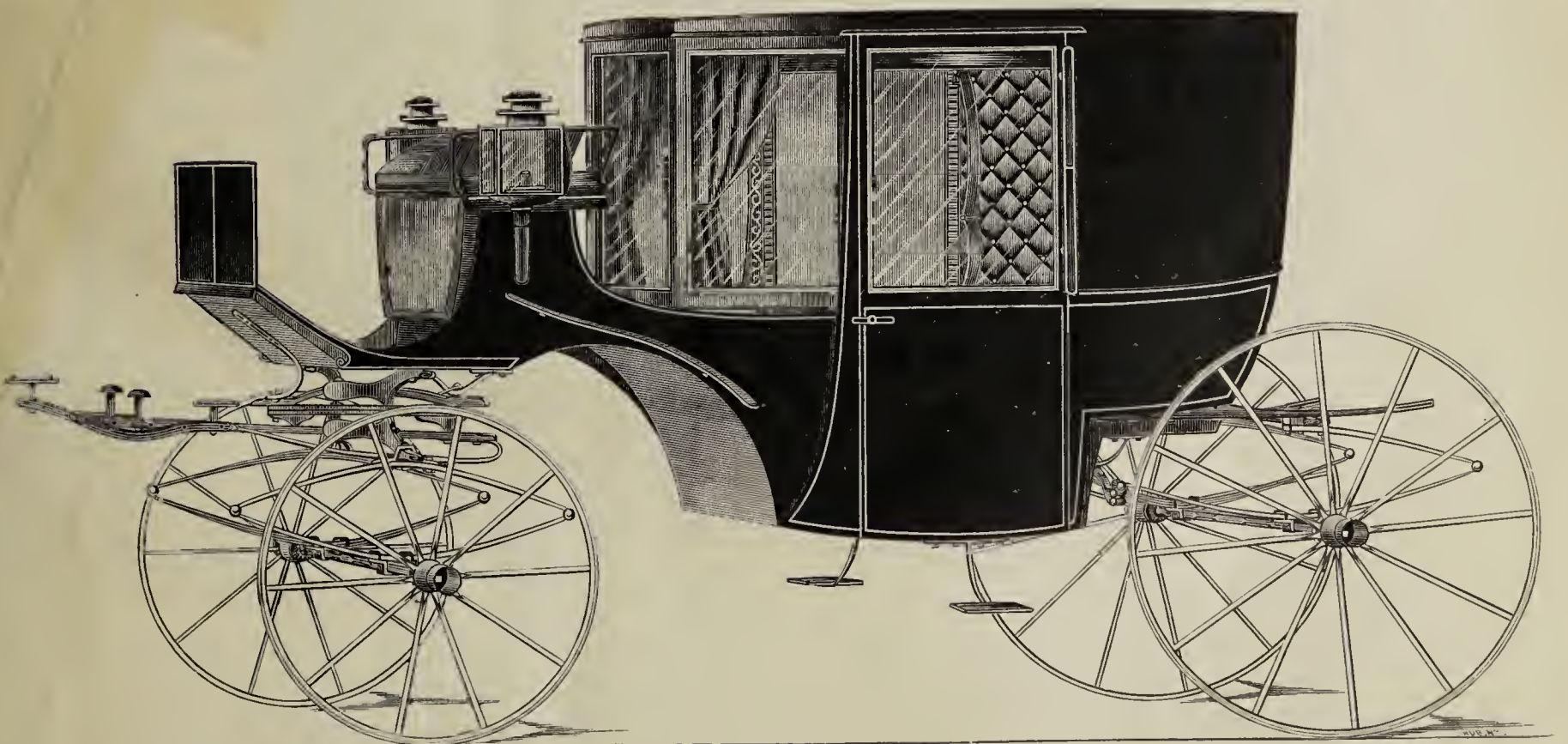


Plate No. 6. CLASS-FRONT COACH.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 21.

OF THE
UNIVERSITY OF ILLINOIS

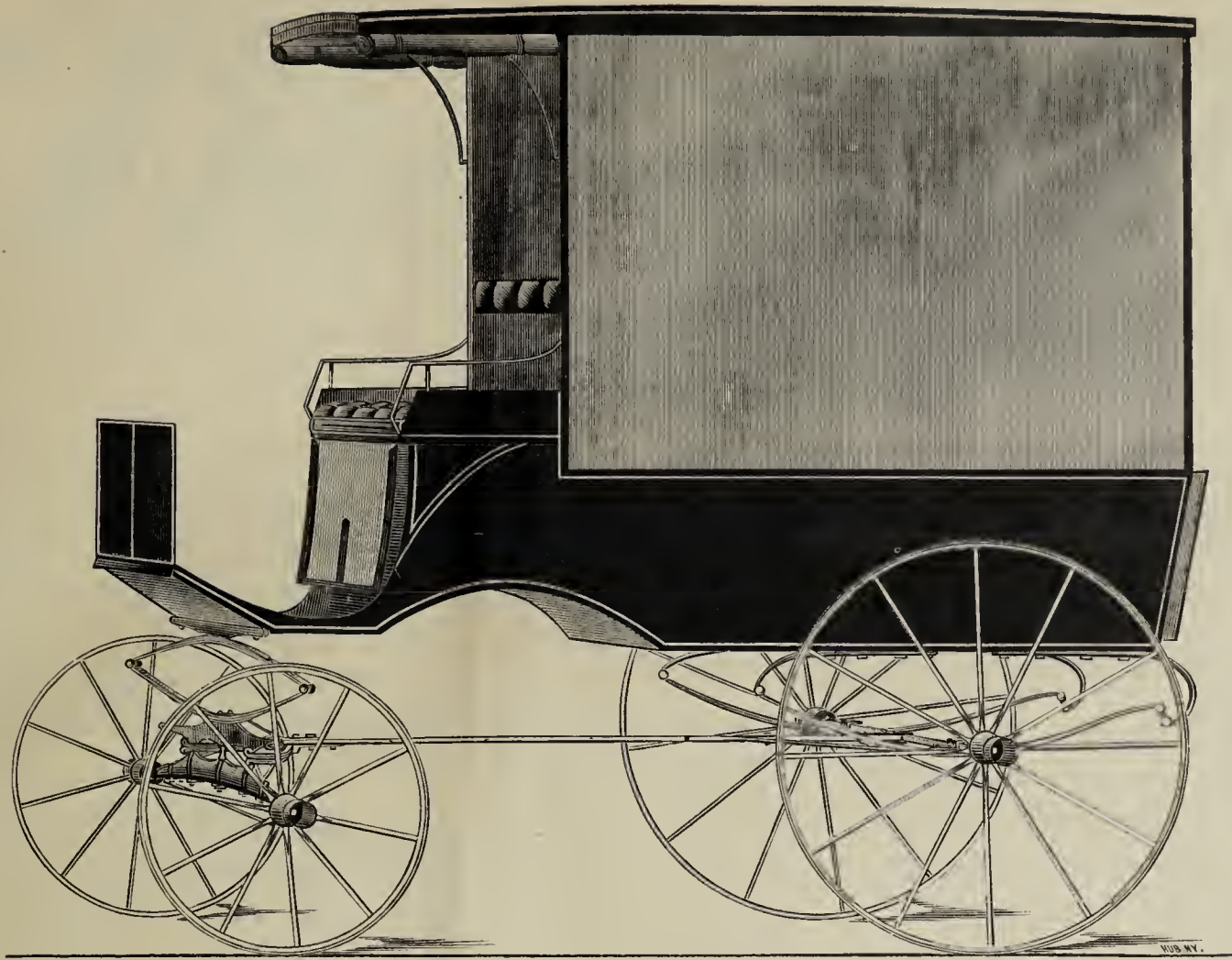


Plate No. 7. PHILADELPHIA AMBULANCE.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 22.

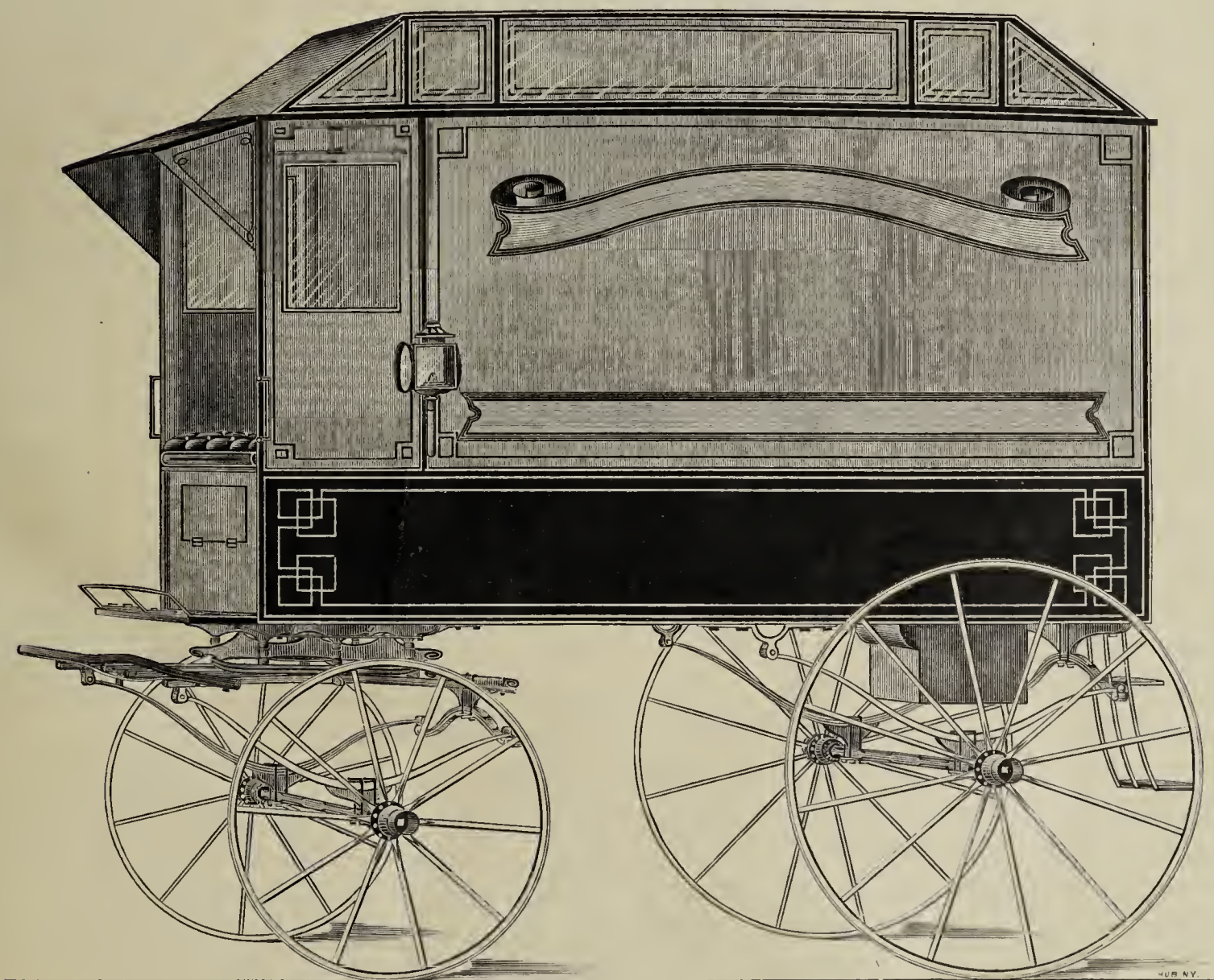


Plate No. 8. NEW-YORK CATERERS' WAGON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 21.

WHOLE ROOFS OF BUILT-UP WOOD

for Carriages, heavy and light, and for Trade-Wagons; ready to put on; \$3 up.

A PRIMER TELLING ALL ABOUT THEM will be sent by the undersigned, if asked for.

Do you imagine you know all about built-up wood? Let's talk it over a minute.

We were in almost at the very beginning of built up wood, and have never been out of it since. If we have been slow to find out its capabilities, the rest of the world hasn't run away from us. We have patented nine of our own inventions, have had one stolen, and have bought one. Built-up wood itself is not a case for a patent. The Government would hardly grant a patent on the mere sticking a few pieces of wood together. And, useful as built-up wood is where it is useful, it has a way of hiding its usefulness under no end of humors; and it is easier to dream about what it is good for than to watch its playfulnesses, take advantage of its essential qualities, dodge in between its tricks, and get true service out of it. A great deal remains to be found out about it yet.

We'll begin with a definition: It is made by gluing veneers together three ply, grains crossing. Properly put together, it cannot split, or crack, or check. It is almost true that it does not warp. It stays put wonderfully.

You know, of course, that a table-top made out of some cheap, soft wood inside, covered over, under and around with walnut, mahogany or other costly wood, is better than solid walnut or mahogany—better every way, and costs less.

You know, probably, that a built-up panel in furniture, or in a door, never cracks or shrinks, and rarely stirs from its plane; though a flat panel, in dry air and varying heat, is about as severely tried as wood can be.

You may know that artists' panels for painting, often several feet in length and width, are built-up out of thin veneers, stiffened with slender frames and cross-pieces; that the two kinds of strength supplement each other, and that, united, they make a most perfect whole, indestructible by the ordinary processes of time. Paintings hang in the upper air of heated and over-heated rooms; and panels of solid wood notoriously warp and crack and split.

You may have seen ceilings of built-up wood, perfect and beautiful year after year, a still more extreme case of exposure to excessive heat.

You have, doubtless, seen seats made of thin veneers built-up. They are strong and light and

pleasing to the eye, if they are not as soft as they look.

You know many of the uses of built-up wood, and of the virtue it adds to whatever construction it enters into. You know its value, and you think you know the limit of its capabilities. You suppose it can't be bent two ways at once, lengthwise and widthwise; that it can't be bent so as to get the crown of the carriage-roof; that it has been tried over and over again, and that it cracks in the bending.

Now, there's your mistake. Everybody thought that an egg wouldn't stand on end till Columbus made the famous little hit which took all the mystery out of that conundrum. You don't know the limits of built-up wood. Nobody does.

We are making carriage-roofs out of built-up wood every day. We crown them perfectly, and make them just as tough as flat work; and they stay in the shape we make them, still just as tough and contented as if they were flat.

We'll give you this hint: You must not force the fiber of the wood, if you want the built-up fabric to keep its integrity.

This is an advertisement. The object is to let you know of the built-up-wood roof. It is one thing to read about a new material of your work; quite another thing to know it—to see it, to feel of it, to turn it over, to cut it, to watch it through all the operations of fitting it to its place and use, to understand it through and through. This knowledge, this thorough understanding of the built-up-wood roof is what we want to give, and what you want to get. The way to give it is to send you a primer and a roof. The way to get it is to devour every line of the primer, and to scrutinize the roof to find out whether it is going to make your work easier and better, and good work less costly; in fact, whether it is money in your pocket and money in your reputation.

One of our roofs is very like another. You need not send for more than one to find out how they all look, and what they all are; and the lowest in price is good enough to judge them all by. At the time when you receive this we shall have all we can do with our facilities. Send for one roof; more when you want them.

E. F. FRENCH,
NEW-YORK.

FACTORY: 330 West Fortieth-street.

The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, APRIL 1, 1884.

No. 1.

THE HUB'S PORTRAIT GALLERY.

JOHN CURTIS, OF CINCINNATI.

(See Portrait accompanying.)

OBITUARY.—Died, on January 19th, at his home in Cincinnati, O., after a painful illness, John Curtis, carriage-builder, aged 65 years. Particulars will follow.—*The Hub*, for February.

WE have delayed for one month the particulars promised in the above item, in order to prepare the accompanying portrait, which gives a fairly characteristic presentment of Mr. Curtis at the period of health and prosperity when he was best known to the trade, feeling sure that it will be valued by many of his old friends, both English and American, who are numbered among our readers.

Mr. Curtis was born in London, England, on June 2, 1818; and learned the trade of carriage trimmer in the famous house now known under the title of Thrupp & Maberly, of Oxford-st., London. In 1844 he came to this country; and, after making a brief stay in New-York City, and then in Albany, N. Y., he removed to Cincinnati, where he established his home, and worked for several years at his trade. In 1853 he established a co-partnership with John Roberts in the business of carriage manufacture, under the title of Roberts & Curtis, and opened a factory on Union and Pearl-sts., near Race-st., where business prospered for several years. About the time of the breaking out of the War of the Rebellion in 1861, when there was a general stagnation in all branches of trade, this firm was dissolved, and Mr. Curtis removed temporarily to Covington, Ky.; but he returned to Cincinnati in a few months, and then established the present works at Nos. 9, 11 and 13 East 6th-st., extending back to No. 1 Langdon Alley, where he soon succeeded in building up a large and remunerative business in high-grade carriages, and establishing wide fame as a skilled and conscientious manufacturer, whose name-plate was a sufficient guarantee of the quality of any vehicle to which it was attached. The business prospered, and he subsequently gained a competence and an acknowledged position among the leaders of the trade in this country.

Some ten years ago he began first to be troubled by facial neuralgia, which gradually grew upon him until it practically debarred

him from his former active participation in business; and in 1877, after financial reverses which may be directly traced to this cause, he practically retired from the business, leaving it in the charge of his sons. Subsequent to the date last named he remained a confirmed invalid, and although he tried every remedy that the best medical skill could suggest, and submitted to seven different surgical operations, he became gradually weakened by long suffering, and for the past five years had hardly left his bed.

Through all his bodily trials, Mr. Curtis retained his mental faculties intact, and exhibited a lively interest in the progress and

development of the trade of which he was so long a leading member. No one sympathized more deeply than he with the organization of the Carriage Builders' National Association. The writer first made his acquaintance in 1872, when, amid great discouragements, the idea of forming such an association was still in embryo; but Mr. Curtis gladly placed his name to the call which resulted in the first meeting, held at the Metropolitan hotel, in New-York City, on Nov. 18th of that year; and he was present at that meeting and elected the Second Vice-President of the temporary organization. For a year or two he continued to lend valuable aid to its development, and our file of the Official Reports of the Annual Conventions shows his name as an active member as late as the third meeting, held in New-York on Oct. 21, 1874; after which date it disappears. The loss thus sustained by the retirement of a member so esteemed, and so capable of adding dignity to its councils, cannot easily be estimated; but his name is sure to retain an honored place in the annals of the Association and the memories of his fellow members, as one

of its founders and first officers. During January of the present year, he transferred an interest in his business to his two sons, William E. and James T. Curtis, when the firm of John Curtis & Sons was formed, under which title the old house is continued as before, and with renewed vigor, it would seem, as preparations are now in progress to largely increase the dimensions and working facilities of the factory, by the erection of a new building on a lot adjoining the present works. An attractive show-room will form an important feature of this extension. The new firm report business good, and prospects encouraging.



JOHN CURTIS, OF CINCINNATI.

DECEASED JANUARY 19TH, 1884.

(See Biography accompanying.)

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures* (*The Carriage Painter*).

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Élysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.



Third and Last Call!

TIME EXPIRES APRIL 15TH.

THE HUB'S PRIZE OFFERS: \$220 Plus.

SUBJECT: PHYSICIANS' PHAETONS AND BUGGIES.

FOR some reason, inexplicable to *The Hub*, the prizes annually offered by the Carriage Builders' National Association for carriage drafts have never proved popular.

What is the cause of this apparent indifference? Are the draftsmen among us so few in number, or are they so occupied with other interests that they find no time to enter into friendly rivalries of this character? *The Hub* proposes to test the case by offering the following prizes of its own,—suggested, we would add, by the proposition introduced at the recent New-Haven Convention by Mr. DeGolyer, of Chicago, Ill.,—and we have used every precaution to make the subject, and the terms and conditions of our offer, attractive and satisfactory to all concerned.

* * *

LIST OF PRIZES.

I. For the Best Design and Working Drawing of a Phaeton or Buggy adapted for the use of Physicians, accompanied by Description of the same:

Cash.....	\$35.00
Silver " <i>Hub</i> Medal of Merit" (Executed by Tiffany & Co.).....	10.00
Subscription to <i>The Hub</i> for One Year.....	3.00
	<hr/> \$48.00

II. For the Second-best ditto:

Cash.....	\$25.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 28.00

III. For the best Design for Ironing a Physicians' Phaeton or Buggy, with Description of the same:

Cash.....	\$20.00
Silver " <i>Hub</i> Medal of Merit,".....	10.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 33.00

IV. For the Second-best ditto:

Cash.....	\$15.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 18.00

V. For the Best Design for Trimming a Physician's Phaeton or Buggy, with Description of the same:

Cash.....	\$20.00
Silver " <i>Hub</i> Medal of Merit,".....	10.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 33.00

VI. For the Second-best ditto:

Cash.....	\$15.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 18.00

VII. For the Best Practical Hint, or "How Paper," treating upon some Improvement in the Construction of a Physicians' Phaeton or Buggy, either illustrated or not:

Cash.....	\$10.00
Silver " <i>Hub</i> Medal of Merit,".....	10.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 23.00

VIII. For the Second-best ditto:

Cash.....	8.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 11.00

IX. For the Third-best ditto:

Cash.....	\$5.00
Subscription to <i>The Hub</i>	3.00
	<hr/> 8.00
	<hr/> \$220.00

In addition to the above prizes, a year's subscription to *The Hub* will be given to each and every competitor whose entry, under any of the above classes, fails to receive a prize, but is deemed worthy, by the jury of awards, of this acknowledgment.

SUPPLEMENTARY PRIZE OFFER.

We take pleasure in calling attention to the fact that the Dexter Spring Co., of Hulton, Pa., make public, in their advertisement this month, the following announcement (we quote therefrom): "The Dexter Spring Co. supplement the offer of *The Hub* by adding to *The Hub's* first prize 'for the best design and working drawing of a Phaeton for the use of Physicians'—if such award shall be for a Phaeton mounted on Dexter springs:—\$100 cash; and to their second premium, \$25; simply requiring a duplicate copy of working drawings and description of the same as furnished to *The Hub*." They add: "This offer must not be understood to be a part of *The Hub* award, but an addition to it, and as a friendly effort on our part to assist in the work."

* * *

The subject, as will be observed, is a broad one, calling for designs, descriptions and mechanical details of all varieties of Phaetons and Buggies adapted to the use of physicians, and thus including all vehicles, of these widely varying types, that are characterized by ample seat and leg-room and by substantial construction.

The prizes include medals, money and *Hub* subscriptions, representing honor, profit and instruction; and every competitor who makes a creditable offering will receive at the least a year's subscription to *The Hub*, or the value of \$3.00.

The jury of award will consist of three well-known persons, Messrs. Gribbon, Konrad and Polya, two of whom are practical body-makers, while all three are carriage draftsmen, and specially fitted, by their past experience and present position, to render wise decisions. To further guarantee entire justice, as well as to render the position of the jury less embarrassing, it is stipulated that all entries shall be anonymous.

As soon as practicable after the prizes shall have been awarded, *The Hub* will reproduce and make public all such drawings as seem to possess general interest; and, in this manner, our subscribers and readers will have an opportunity to share in the benefits of our prize offers; and, as soon as these reproductions have been made, the original drawings will be presented to the Technical School for Carriage Draftsmen and Mechanics, for exhibition on the walls of the class-room, thus still further extending the benefits of the competition to present and future pupils of the trade school.

Below, we briefly epitomize the terms and conditions which have been deemed advisable as a basis for receiving entries under the above-named offers, and for awarding the prizes:

* * *

CONDITIONS.

I. These prize offers are open to the world.

II. All drawings and descriptions must be addressed to the "Editor of *The Hub*, No. 323 Pearl-st., New-York City," and bear in the lower left-hand corner the words "For Competition."

III. All drawings must be made to the scale of one inch to the foot, with either ink or pencil. India-ink is preferable, but some of our friends may not be familiar with its use; and we desire to avoid imposing any condition which might rule out any intending competitor.

IV. All drawings and descriptions must be anonymous, but accompanied by a sealed envelope containing the full name and address of the sender, which latter will not be opened until after the awards have been determined.

V. All drawings and descriptions must be received by the Editor of *The Hub* on or before April 15, 1884.

VI. The jury of award will consist of the three instructors now connected with the Technical School for Carriage Draftsmen and Mechanics in this city, namely: Messrs. Gribbon, Konrad and Polya.

VII. The above-named jury shall have the power to withhold any or all of the above prizes in case no offerings are made which, in their judgment, deserve such recognition; or they may extend the period during which offerings will be received.

VIII. All drawings and descriptions offered in competition will become the property of *The Hub*; but, after reproducing and publishing such as may be deemed desirable, the originals will be presented by *The Hub* to the Technical School for Carriage Draftsmen and Mechanics in this city.

IX. The receipt of any drawing or manuscript addressed according to the directions contained in Section II, will be considered evidence that the sender agrees to all the above conditions; or, in the event of any misunderstanding, or the rise of any question not covered by these terms and conditions, to abide by the decision of the jury of award above named.

* * *

The Hub has endeavored to faithfully perform what it considers a public duty, in thus presenting an opportunity for the carriage draftsmen, blacksmiths and trimmers to make themselves known to the trade. It now rests with these draftsmen, blacksmiths and trimmers to do their part. Many winners of *The Hub's* previous prizes assure us that the favorable introduction to the trade, thus afforded, proved valuable to them as a means of advancement. The same ladder is now placed within the reach of every reader of this announcement.

Gentlemen, we have a compartment in *The Hub's* safe now awaiting your offerings! We hope you will fill it to overflowing.

PUBLISHERS OF *The Hub*.

New-Years, 1884.

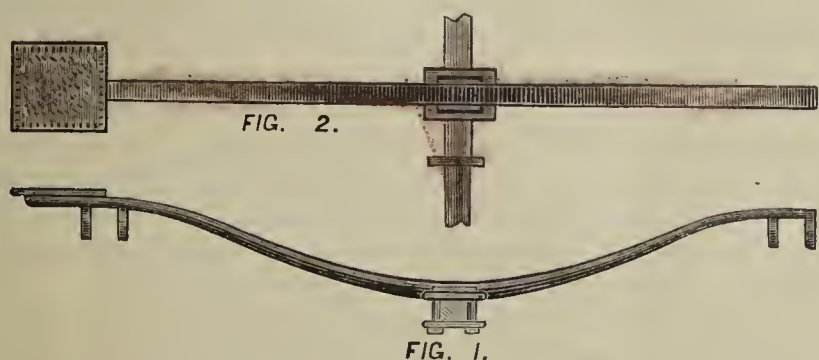
DESCRIPTIONS OF FASHION PLATES.

LADIES' CART, WITH IRON SIDE-BARS.

(See Fashion Plate No. 1.)

THIS Cart was built by Mr. Wm. D. Gardner, of Philadelphia. It is very light, and includes several new features, principally in connection with the ironwork. The sketches from which our Fashion Plate was produced were kindly furnished by Mr. R. H. Lee, the skilled foreman of Mr. Gardner's blacksmith department.

The body of this Cart resembles that of a Coal-box Buggy, but the back and front have considerably more flare than has lately been applied to bodies of this character. The extra rail on top of the panels at the sides and back, adds materially to the good appearance of the job. The space between the rail and the panels is filled with sticks, either turned or V-shaped. The mode of suspension, as above suggested, differs from any heretofore published in connection with Carts. An iron bar is clipped to the axle parallel with the body. This bar is made of $1\frac{1}{4} \times \frac{3}{4}$ inch iron at the axle, but tapered toward the end in order to give it a lighter appearance. This bar is made oval between the axle and cross-spring. Flanges are welded at the ends of the bar, for the reception of the cross-springs. The front end of the bar extends beyond the cross-spring, and the step-shank is welded to the bar. See drawing. The step-pad is fastened on top of this extension of the side-bar. For a better understanding of this, we introduce below two sectional cuts: Fig. 1, a side elevation, Fig. 2, a top view of the bar.



The shafts, as will be seen by these sectional cuts, are connected to the body in a manner very much the same as that by which the ordinary shaft is fastened to the axle-bed of four-wheeled carriages. A plate is fastened under the front of the body, assuming, in front of the body, the shape of a jack-clip; this is for the reception of the shafts. A spring,

which is fastened to the bottom of the shafts and at the front of the spring-bar, is said to prevent all knee motion. Two flanges are welded to the shaft-plate for the reception of this spring, which works in a pivot. A wooden dash may be used if desired. The lamps are fastened to the dash.

We are informed by Mr. Lee that this makes an attractive looking and serviceable vehicle, and we see no reason to doubt the correctness of his statement.

Dimensions.—Width of body at the top, 29 in.; and at bottom, 25 in. Width of seat on top, 38 in.; and at bottom, 32 in. Height of wheels, 3 ft. 6 in. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 12. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{1}{2}$ in. diameter. Front bands, $2\frac{1}{4}$ in.; and back, $2\frac{3}{4}$ in. diameter. Length of front bands, $1\frac{5}{8}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $\frac{7}{8} \times \frac{3}{16}$ in., round edge steel.

The springs are 33 in. from out to out, with $2\frac{1}{4}$ in. arch over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three for the front, and four for the hind spring. For the front spring the first plate is No. 2, the next No. 3, and the last No. 1 steel. For the hind spring, the first plate is No. 2, the second No. 4, the third No. 3, and the last No. 1 steel. The springs are clipped to the cross-bars. Axles, $\frac{7}{8}$ in. Track, 4 ft. 2 in.

Finish.—The character of the painting is an important feature in making this vehicle attractive. We would suggest making the body and seat dark green, moldings a pale blue, with the running-gear rich carmine, striped with two fine-lines of black. Trimming, blue cloth, finished with two rolls for the lazy-back, the diamond pattern for the cushion top, and two raisers for the fall, made of the same material as the rest of the trimming. Carpet, blue, with black figures. Mountings, silver.

LADIES' PHAETON, WITH UMBRELLA TOP.

(See Fashion Plate No. 2.)

LADIES' PHAETONS have of late been in considerable demand, especially those of medium price. The building of the vehicle represented by this Fashion Plate is moderately expensive, the body being hung on three springs, while the suspension can be further simplified, if desired, by using two springs only. In the latter case, a wooden axle-bed is used for the hind axle also.

Solid sides are used for the body. The rockers are made of $1\frac{7}{8}$ in. ash, and the curved part forming the bottomsides is worked on to the rockers. A projection of $\frac{1}{2}$ in. of the bottomside over the rocker is sufficient to form a contrast between the bottomside and rocker. The body-loops are the extension of the rocker back and front, and should be well plated to sustain the weight of the body and occupants.

The child's-seat is stationary, but can readily be made adjustable, if preferred, though in that case a slight deviation would be advisable in the shape of the rocker at the front. The bottomside, instead of running up to the seat and forming an angle, should follow the bottom sweep of the bottomside. The depth should be 2 in. on the inside, which is then lightened off toward the outside. The seat can be hinged to the front cross-bar, or have a plate fastened to the bottom of the seat, with a pin welded to the front end. [See cut.] The holes are then bored into the



cross-bar, and a plate is let in even with the top of the cross-bar to keep the hole from wearing. In either case, legs are hinged to the front of the seat. We would prefer the latter method of attaching the child's-seat, as in case the seat is not used it can be easily removed, which could not be done if the seat were hinged to the bar.

The rockers are each made of five pieces. They could be made of one piece, but, though requiring less labor than when made of five pieces, the result is undesirable, as the upright parts are necessarily much cross-grained. The dash continues to the bottom of the center rocker, forming a fender, which, however, can be dispensed with, if preferred. If an umbrella top is not desired, a canopy top can be substituted. The perch is made of bent hickory.

Dimensions.—Width of seat at front, $42\frac{1}{2}$ in.; and at back, $38\frac{1}{2}$ in.; ditto at the bottom in front, 39 in.; and at the back, $35\frac{1}{2}$ in. Width of the body on top, $34\frac{1}{2}$ in.; and at the bottom, $33\frac{1}{2}$ in., from out to out. Rocker-plates, $1\frac{3}{4} \times \frac{5}{16}$ in., steel, fastened with $1\frac{1}{4}$ in. No. 14 screws. Diameter of wheels, 2 ft. 6 in. front, and 3 ft. 3 in. hind, without the tire. Depth of rims, $1\frac{3}{8}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{3}{4}$ in. diameter. Front bands, $2\frac{1}{2}$ in.; and back, 3 in. diameter. Length of front bands, $1\frac{5}{8}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $\frac{7}{8} \times \frac{1}{8}$ in., round edge steel.

The front spring is elliptic, 36 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, three, all No. 3 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{8}$ in. The bottom half is clipped to the head-block. The hind springs are elliptic, 36 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates three, namely: the first No. 3, and

the other two No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The bottom half is clipped to the axle. Axles, $\frac{7}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of panels, dark brown, and moldings and rest of the body, black. The moldings are edged with a fine line of white. Running-gear, same color as the body-panels, striped with two fine lines of white at a distance. Trimming, brown cloth or morocco. The squab work is tufted. Carpet, plain brown. Mountings, brass.

SPIDER PHAETON.

(See Fashion Plate No. 3.)

THE spring exhibitions show a tendency in favor of Spider Phaetons, and some of our best builders have many more under way.

In a late number of *Le Guide du Carrossier*, published in Paris by Mr. Brice Thomas, appears a drawing of a Spider Phaeton recently built by Belvalette Bros., of that city, which shows some novel points. One of these consists in dispensing with the iron body-loops and stay usually connecting the seat with the loops, the rocker or bottomside being made of wood instead. Next, the back corner-pillar, instead of ending at the bottom of the seat-frame, is extended to the bottomside, and framed into the same. The claim that the use of wooden bottomsides throughout, in place of iron loops, is more in harmony with the vehicle as a whole, is apparently well founded, and some of our leading American builders have adopted the same method.

It will be seen in our drawing that the sweep of the bottomsides has less arch than is generally given to vehicles of this class where the body is suspended on iron loops. This necessitates a reduction in the height of the front wheels, in order to further facilitate low hanging of the body, and to afford the necessary space between the top of the wheel and bottom of the body. A strong plate is put on the bottom of the bottomside, the entire length; this plate is swaged half round, to relieve the heavy appearance which would characterize the bottomside if left square. It is also important that the front step be correctly placed, to prevent the possibility of the wheel coming in contact with it.

Dimensions.—We omit the dimensions of the body, as a working draft will follow in our next number, containing all measurements, and accompanied by full particulars as to the manner of construction. The wheels are 2 ft. 3 in. front, and 3 ft. $3\frac{1}{2}$ in. hind, without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{5}{8}$ in. Front hubs, 5 in., and hind, $5\frac{1}{4}$ in. diameter. Front bands of front hubs, $3\frac{1}{2}$ in., and back, $4\frac{1}{8}$ in. diameter. Front bands of hind hubs, $3\frac{3}{4}$ in., and back, $4\frac{3}{8}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front springs are elliptic, 36 in. long, from out to out, with $7\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, three, namely: the first No. 2, the next No. 3, and the last No. 4 steel. Holes apart on top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 38 in. long, from out to out, with 7 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the other three No. 3 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The bottom halves of the front and hind springs are clipped to the axles. Size of axles, $1\frac{1}{8}$ in. Width of track, 3 ft. 8 in. front, and 4 ft. 6 in. hind.

Finish.—Painting of the body-panels, dark green; and moldings black, edged with a fine line of deep orange. Running-gear, same color as the body, striped with two medium lines of deep orange at a distance. Trimming, dark green morocco for the back and cushion top, and green cloth for the sides, fall and head-lining. Carpet, plain dark green. Mountings, brass.

FULL-SWEEP CABRIOLET.

(See Fashion Plate No. 4.)

ROUND-BOTTOM CABRIOLETS and Victorias have been in style for some years past, and widely varying styles have been introduced. The majority are left open at the lower part of the body, to give a lighter appearance, while others are paneled the full height of the sides and back. Most Victorias and Cabriolets seen in the spring exhibitions have a full sweep at the bottom and back, as represented in the accompanying Fashion Plate. Those having a body with the lower part open are unquestionably of striking and stylish appearance, but it is doubtful whether this pattern will prevail as long as that with the round bottom and full sides. We well remember the round-bottom Victoria, with rumble, hung on eight springs, exhibited by Messrs. J. B. Brewster & Co., of this city, at the Centennial Exhibition at Philadelphia, and which, in our estimation, was one of the finest vehicles displayed in the American department. To attain the best results with such a carriage, the body must be given a faultless outline and a full and graceful sweep. It is un-

advisable, for the sake of obtaining a light body, to make the curve short, as carriage-builders too often attempt, for this not only spoils the general appearance, but also interferes with the leg-room. The boot, to correspond with the rest of the carriage, should be rather heavy. The top also should have due prominence, and be about 50 in. in length. Bent wood is advisable for the back bottomside.

The connection of the middle pillar with the arm-rail may be formed in various ways, as the builder may prefer. Some body-makers are accustomed to splice the pillar and arm-rail in such a manner that the joints form a feather-edge; while others frame the pillar and arm-rail together by a slip tenon and mortise. If done well, we consider the latter method preferable. By making the pillar and arm-rail of one piece, we may dispense with the joint altogether, but this process requires an unnecessarily large piece of timber, and considerable additional work in dressing, which hardly repays for dispensing with the short joint.

During a recent conversation with Mr. H. G. Shepard, manufacturer of bent wood, of New-Haven, he suggested that if two patterns were furnished him, one for the side elevation, and the other for the side swell and turn-under combined, he could then bend the arm-rail in the two different directions at the same time, thus saving much time and labor. The only difficulty we perceive in utilizing this suggestion is the dressing and pricking off of this piece, which could hardly be accomplished without having at least one straight side; but Mr. Shepard further suggests fastening a piece of whitewood temporarily on the inside, for the purpose of overcoming the difficulty. If any of our readers can suggest some plan by which the object spoken of can be accomplished with accuracy, the adoption of arm-rails and pillars made in one piece is likely to become more general.

The child's-seat is slid into the boot when not in use, and consists of a frame which may be finished in the natural wood and merely varnished, or be painted black. Cane-work is used to cover the space between the frame pieces.

Dimensions.—Width of body on top of the arm-rail at the middle pillar, 49 in.; at the back, 42 in.; at the driver's-seat, 32 in.; and at the dash, 31 in. Size of rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Front wheels, 2 ft. 6 in.; hind, 3 ft. 6 in. diameter without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{7}{8}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, $5\frac{1}{4}$ in., and hind, $5\frac{1}{2}$ in. diameter. Front bands for front hubs, $3\frac{3}{8}$ in., and back, $4\frac{3}{8}$ in. diameter. Front bands for hind hubs, $4\frac{1}{8}$ in., and back, $4\frac{5}{8}$ in. diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{8} \times \frac{5}{16}$ in., round edge steel.

The front springs are elliptic, 38 in. long, from out to out, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 40 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the other three No. 3 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{4}$ in. Track in front, 4 ft., and hind, 4 ft. 8 in., from out to out.

Finish.—Painting of rear quarters and back panels, dark blue; and moldings and boot panels, black, with no striping on the moldings. Running-gear, dark blue, striped with a heavy line of black, and two fine lines of light blue at a distance. Trimming, blue cloth throughout. For the back, the combined block and pipe pattern is well adapted, which will also answer for the cushion-top. The block pattern may be used for the sides. The fall is edged with broad-lace. Dickey-seat, blue cloth, trimmed plain. Carpet, blue, without figure. Mountings, silver.

TEN-PASSENGER WAGONET.

(See Fashion Plate No. 5.)

WAGONETS have grown rapidly in popular favor, and are now supplied in great variety to suit different purposes, some being fitted up very elegantly, and adapted for the fashionable drives. They are most commonly made to accommodate four persons inside, and two on the front or driver's-seat; while others, of larger size, are used to convey families to places of amusement, or from the city to the country, and accommodate ten to twelve passengers. The Wagonet is also found convenient at the summer resorts for conveying visitors from the railway station to the hotel; and in this case, the vehicle is usually provided with a canopy top, as shown on our drawing, while calculations have to be made, in the construction of the body and running-gear, to carry some baggage. The material used for trimming need not necessarily be fine, but it should be substantial. The painting, also, must not be slighted, as such vehicles see hard service, and inferior painting would soon manifest itself.

The Wagonet represented will carry ten passengers comfortably, and twelve if necessary, seat-room of 18 in. being allowed in the first instance for each passenger. The construction is simple, the sides of the body being straight. The sills for the back part of the body are $3\frac{1}{4} \times 2\frac{1}{4}$ in.,

and the front rocker $1\frac{1}{2}$ in. thick. These are let into the hind sill even with the inside, allowing the back of the body to project over the front part $1\frac{3}{4}$ in. The front seat has round corners, and is made of good height to harmonize with the rest of the vehicle. Turned sticks are applied to the front seat and sides of the body. The seat top-rail on the sides of the body is not straight, as customary, but is swept about 1 in. in the center, which we consider an improvement as compared with the straight rail.

Abundance of room is left to store small packages under the side seats. A lining board may be fastened under the seat and to the bottom of the body, provided with several lids; or a board may be fastened to the uprights about $3\frac{1}{2}$ to 4 in. high, to prevent the packages from falling out. The curtains are not made to roll up, but slide on a brass wire, which is fastened to the top rail, and has an eye on each end and in the center. A hole is drilled through this eye for the entering of a screw. This arrangement allows of removing the curtains without much labor.

We would suggest strengthening the sides of the seat at the body by several stays made of $\frac{5}{16}$ in. round iron, screwed to the seat-frame and seat-rail, and opposite the sticks. The lazy-back is fastened to the seat-rail by four stays, the latter forming a T at the seat-rail.

Dimensions.—Width of back of body on top of seat-rail, 50 in.; and at the bottom of seat, 46 in.; ditto body on top, 36 in., and at bottom, 33 in.; ditto front seat on top, $42\frac{1}{2}$ in.; and bottom, 37 in.; ditto body on top, $32\frac{1}{2}$ in.; bottom, $29\frac{1}{2}$ in.; and at dash, $29\frac{1}{2}$ in. Rocker-plates, $3 \times \frac{1}{2}$ in. at the boot rocker and $1\frac{3}{4} \times \frac{1}{2}$ at the back part of the body, fastened with 2 in. and $1\frac{3}{4}$ in. No. 18 screws. Front wheels, 3 ft. 4 in., and hind, 4 ft. 2 in. diameter, without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{9}{16}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, 6 in., and hind, $6\frac{1}{4}$ in. diameter. Front bands of front hubs, $4\frac{1}{2}$ in., and back, $5\frac{1}{4}$ in. diameter. Front bands for hind hubs, $4\frac{3}{4}$ in., and back, $5\frac{1}{2}$ in. diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, 8 in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 37 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Side-springs are used for the hind carriage-part, 51 in. long, from out to out, with $4\frac{1}{2}$ in. arch over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, seven, namely: the first three No. 2, the next two No. 3, and the last two No. 4 steel. Axles, $1\frac{3}{8}$ in. in front, and $1\frac{1}{2}$ in. hind. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body-panels between the moldings, dark green; and moldings and rest of the body, black. Running-gear, bright vermilion, striped with one broad line and two fine lines of black. Trimming, green morocco. Curtains, either enameled leather or rubber. Carpet, green, with red figures. Mountings, silver.

GLASS-FRONT COACH.

(See Fashion Plate No. 6.)

COACHES of this general pattern were built many years ago, and we remember having seen a similar one in a leading New-York repository at least ten years since. The style apparently did not meet with great favor at that time, as very few were built, the Double English-Quarter or Berlin Coach having then the preference. Of late, however, this style has been brought to the front again by several prominent manufacturers, and seems likely to meet with better success. The front quarter, as will be seen, somewhat resembles that of the Octagon-front Coupé, but the term "Octagon-front" would hardly be appropriate to apply to the accompanying drawing, as the quarter is of larger size, measuring 21 in. on the outside. The back quarter of this Coach has the square corner, and the spring exhibitions clearly show that the leading manufacturers of heavy work still adhere to this style. This Coach is lighter in appearance than the Berlin Coach; while the front seat, although not as deep as on the above-named vehicle, has dimensions quite sufficient to give comfortable seat-room. The front-quarter glasses are made either stationary or removable; and in the latter case they are stored either in the boot, or in the door. The latter method, however, we do not wholly approve of. It is true that storing the frames in the door requires a trifle less time, as compared with placing in the boot, but it demands much heavier timber, and we would prefer submitting to the extra trouble of storing the frames in the boot, rather than have the heavy door pillars, bottom-sides, etc., which would otherwise be requisite. The front glass may be made to drop, or, if preferred, to slide. In the latter case, two glass-frames are needed. Coaches of this class are sometimes provided with shifting quarters, but such are, in nearly every instance, ordered jobs, with the shifting quarters consisting of curtain, glass and panel quarters. A Coach of the pattern illustrated would look well, we think, if provided with a stationary light at the back quarter.

Dimensions.—Width of body at the hinge-pillar 51 in.; at the lock-pillar,

49 in.; at the back at arm-rail, 43 in.; at the front, 35 in.; and at the dash, 34 in. Rocker-plates, $3 \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Front wheels, 3 ft., and hind, 3 ft. 8 in. diameter, without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, 6 in., and hind, $6\frac{1}{4}$ in. diameter. Front bands for front hubs, $4\frac{1}{2}$ in.; and back, $5\frac{1}{8}$ in. diameter. Front bands for hind hubs, $4\frac{5}{8}$ in., and back, $5\frac{3}{8}$ in. diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, 8 in. Size of tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 38 in. long, from out to out, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. The hind springs are platform. Length of side-springs, 41 in., from out to out, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. The cross-spring is 40 in., from center to center, with 5 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first No. 2, the next No. 3, and the last No. 4 steel. Axles, $1\frac{3}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower quarters, back and door panels, dark green; and upper quarters, back, boot panels and moldings, black. The moldings are striped on the inner edge with a fine line of light green. Running-gear, the same color as the body but a shade lighter, striped with a broad stripe of black, edged with fine lines of light green at a distance. Trimming, green morocco for the lower front and rear back, cushion tops and doors; and green cloth for the upper and lower quarters, upper back, falls, head-lining and driver's-seat. The diamond pattern is used throughout. Broad-lace is used around the falls, doors and top rail. Carpet, dark green, with black figures. Mountings, silver.

NEW-YORK CATERERS' WAGON.

(See Fashion Plate No. 7.)

A COMPARATIVELY new branch of industry has recently been introduced in New-York City, that of catering to families. Caterers serving meals for public entertainments, balls, etc., have carried on a profitable business for years past; but the idea of serving regular meals to families is of recent development, being an outgrowth of patronage from families living in the so-called "French flats." This new method of having meals served is not a cheap one, and only people of means can indulge in such a luxury; but the business is evidently a thriving one, if we may judge by the number of cooks and others employed, and also by the number of wagons already in use in the service, which is rapidly increasing. The meals are served hot, and it is claimed that the quality is equal to that supplied by any first-class hotel. To accomplish the feat of keeping the victuals hot, the interior arrangements of these wagons are of an ingenious construction, and are patented by Mr. Franz Neumuller, of No. 30 East 20th-street, New-York, who is the introducer and proprietor of this new enterprise.

The wagons are made by Mr. Robert Jones, corner Bridge and Nassau-streets, Brooklyn, N. Y., one of the most prominent wagon-builders in that city. The outside of the body is plain. The sides are divided by a molding, as shown in our drawing. The corner-pillars are rounded and beaded. The wagon represented in our Fashion Plate is of the largest size, and has a double roof, the second one being 12 in. above the lower one, while the space intervening between the two roofs is filled with five lights. The width of the raised roof is 2 ft., and is shaped as per drawing. The front is partitioned off from the other part of the wagon by narrow boards such as are used for ceilings, and having a half-round bead on each side. These boards are varnished. A box is constructed under the driver's-seat, for the blankets and an apron. A small clock is fastened to the above-named partition, which completes the outfit in front. (We would add that the double roof is dispensed with in the smaller size wagons.)

The inside of this wagon at the back is divided into three spaces. One of these is a passage-way, and each of the other two spaces is occupied by a box large enough to hold five metallic vessels. Another movable vessel, in which are placed the different dishes composing a meal, fits into the first-named apparatus. A cast-iron boiler is fastened under the bottom of the wagon, close to the back-bar, and is divided into two apartments, the upper one containing water, while the lower one is the furnace. (We have placed this boiler a little further forward in our drawing than it is on the original, for the reason that, if we were to place it at the right point, it would interfere with the representation of the hind carriage-part.) This boiler is connected with the stationary vessels in the inside of the wagon by an iron pipe, and the inside vessels are in turn connected with each other.

It will be seen that, by this arrangement, the steam generated in the boiler under the wagon is communicated to the stationary vessels, thus

keeping the victuals placed in the movable vessel well heated until they are removed.

Bread, cakes, and other articles usually served cold, are placed in boxes, and held on hooks by means of rubber straps. The hooks are fastened near the top-rail by screws. There are sufficient accommodations in each wagon to serve ten ordinary families. In the wagons of smaller size, the passage way is dispensed with.

The construction of these wagons is first-class, as is already sufficiently proved by their wearing qualities. The wagons are out every day, at all times, and are driven rapidly over rough pavements; but though some of them have now been in use for over a year, they seem in as good condition, with the exception of the wear of the tires and paint, as when they left the shop, thus bearing excellent testimony to the skill of Mr. Jones, the builder.

Dimensions.—Width of body, 48½ in., from out to out. Wheels, 3 ft. 1 in.; and hind, 4 ft. 2 in. diameter, without tire. Depth of rims, 2 in. Spokes, 1⅝ in. The wheels are of the Sarven patent. Tire, 1⅝ × ⅝ in.

The front springs are platform. The side-springs are 41½ in. long, from out to out, with 8 in. opening over all. Width of steel, 2¼ in. Number of plates, six, namely: the first two No. 2, the next three No. 3, and the last No. 4 steel. The cross-spring is 42½ in., from center to center, with 6½ in. opening over all. Width of steel, 2¼ in. Number of plates, six, namely: the first three No. 2, and the last three No. 3 steel. The hind springs are platform. The side-springs are 42½ in. long, from out to out, with 8 in. opening over all. Width of steel, 2¼ in. Number of plates, seven, namely: the first three No. 2, the next three No. 3, and the last No. 4 steel. The cross-spring is 42½ in., from center to center, with 6½ in. opening over all. Width of steel, 2¼ in. Number of plates, six, namely: the first three No. 2, and the last three No. 3 steel. Axles, 1⅝ in. Track, 4 ft. 8 in., from out to out.

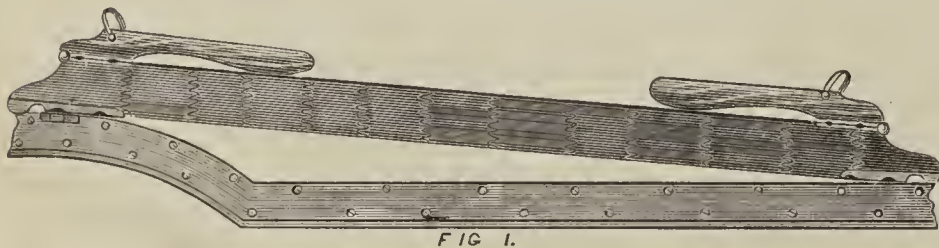
Finish.—Painting of the body, black, striped with gold. Running-gear, straw color, striped with two lines of black. The double roof is painted white, and striped gold. Trimming of cushion, black enameled cloth. Mountings, silver.

PHILADELPHIA AMBULANCE.

(See Fashion Plate No. 8.)

THE Ambulance illustrated in the accompanying Fashion Plate was built by Mr. Wm. D. Gardner, carriage manufacturer, of Philadelphia, Pa., for the Police Department of that city; and for the sketches and measurements we are indebted to Mr. R. H. Lee, who has charge of the smith-shop in that establishment.

The body of this Ambulance is made as compact as practicable, and the stretchers and bedding reach forward to the driver's-seat. The rockers are made in three pieces of ash, spliced together; size, 3 × 1½ in. The frame-work consists of the four corner-pillars, two middle rails, two top rails, two short pillars in front, connected with a cross-rail for the support of the seat-frame, and two strainers between the two corner-pillars. The two middle side-rails are 2 × ¾ in., and these are lapped to the corner-pillars. A bar goes across the body, in the middle of the wheel-house, for the stretchers to rest on. In order to afford a better understanding of the interior arrangements, we herewith present a sectional cut showing the position of the stretcher and bedding, Fig. 1.



The lower section of the body is paneled, while the upper section is provided with curtains. The rear entrance is constructed similarly to the tail-gate on an Express Wagon.

The stretchers are provided with folding handles, which we illustrate by the two sectional cuts, Figs. 2 and 3.

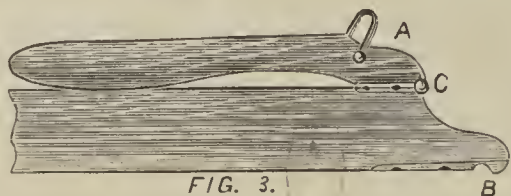
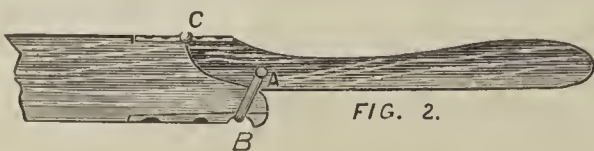


Fig. 2 shows the handle of the stretcher when ready for use; while Fig. 3 shows the same when folded. A is an iron link which, when

brought into position as per Fig. 2, drops into the notch B; and C is the turning-point for the hinge, which is let into the top of the stretcher. One iron plate is let into the bottom of the stretcher, and the notch B is forged out of that plate.

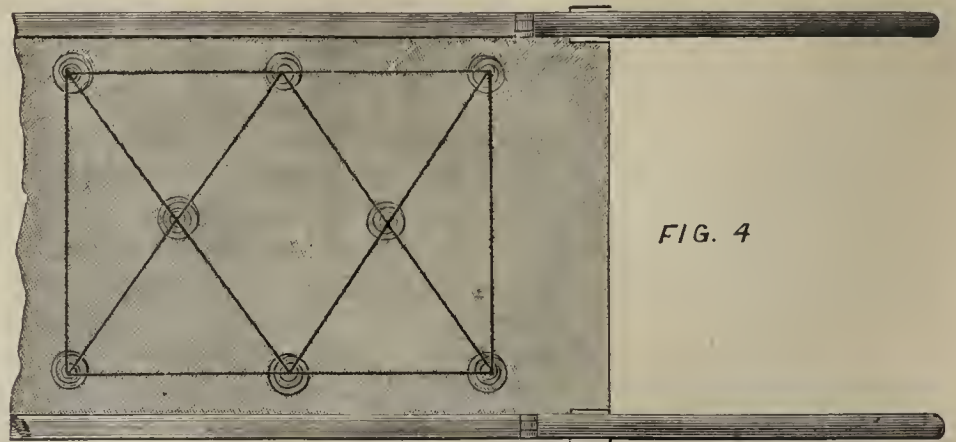


Fig. 4 shows a section of the stretcher. All these sketches, with the exception of Fig. 1, are made to the scale of 1 in. to the foot. The remaining outfit consists of a heavy woolen blanket, an India-rubber blanket and bedding.

Side-springs are used for the hind carriage-part, and are clipped under the axle. The perch stay, instead of being clipped under the axle, is clipped under the spring, the manner of which is shown in Fig. 5. The body hangs low, to insure greater ease in receiving and removing patients.



Dimensions.—Width of body at the bottom, 40 in.; on top of the panel, 45 in. Front wheels, 30 in., and hind, 42 in. diameter, without the tire. Depth of rims, 1⅝ in. Size of spokes, 1⅝ in. Number of spokes, 10 and 12. Stagger of spokes, ⅜ in. Hubs, 5 in. diameter. Front bands, 3¾ in., and back, 4¼ in. diameter. Tire, 1⅝ × ⅝ in.

The front spring is elliptic, 35 in. long, from out to out, with 9 in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, the next No. 4, the third No. 3, and the last No. 1 steel. For the hind carriage-part half-springs only are used, which are 41 in. long, from out to out, with 4½ in. arch over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, next, No. 4, third, No. 3, and last No. 4 steel. Size of axles, 1¼ in. Track, 5 ft. 2 in., from out to out.

Finish.—Painting of body, black, and the moldings are striped with a fine line of white. Running-gear, yellow, striped with black. Trimming, black enameled cloth for the cushion, fall and back. Mountings, silver.

DESCRIPTIONS OF COLORED PLATES.

COAL-BOX BUGGY.

(See Colored Plate No. XXXVIII.)

IN selecting a Coal-box Buggy as the subject of the introductory Colored Plate in our new volume, we are influenced by the requests of subscribers, and also by our own belief that Coal-box Buggies are rapidly attaining increased favor.

To give a Buggy of the style represented the best possible effect, care should be exercised that the sides of the body and seat are not made too shallow. Great caution is also necessary, in designing the outline of the back of the body, and the Stanhope-pillar, to give the right inclination. The Stanhope-pillar is made of whitewood, and is fitted to the body and seat after the seat is screwed to the body. The seat has round corners, and the moldings are worked on. The back of the body is slightly concaved, and has square corners. The slat-work is imitation, worked on the panel; the panel should therefore not be less than ½ inch thick; and, to give the panel at this point the necessary strength, we would

recommend gluing a thin panel on the inside, the grain of this thin panel to cross that of the outside panel. The top face of the side and back panels need not be made any heavier than $\frac{5}{16}$ in., and a corner-plate is let in from the top face. A better finish will be accomplished when the top face is made half-round. As mentioned before, the back is slightly concaved.

Every body-maker will agree with us that, in building a body with round corners and with sides and back concaved, the bending of a panel around in one piece is quite a difficult undertaking. In most cases, when the corner has a great curve, heavy corner-blocks are applied; or, when the sides and back have considerable swell, heavy whitewood is resorted to. We learned recently from Mr. G. H. Bronson, foreman with Messrs. Holcomb Bros. & Co., in New-Haven, that that firm were about to build a Tilbury body after the design published in the December number of *The Hub*, having concave sides and back, and that he intended to try the experiment of making the panel of one piece, although he agreed with us that it would be a difficult job. Some weeks after, we were agreeably surprised to learn that, after two failures, he had succeeded in bending the panel around the seat, or rather a frame made the shape and size of the seat; and he stated, that after this experience, he thought he could hereafter succeed still better. We hope Mr. Bronson may have further opportunities to exhibit his skill in this direction.

The sill is made either of one piece, or the toe-board is framed to the sill. In either case a light rocker-plate should be applied on the inside. The body, as represented in our plate, is suspended on Timken springs.

Dimensions.—Width of body on top, $31\frac{1}{4}$ in.; bottom, 28 in.; ditto on top of seat, $39\frac{1}{2}$ in.; and bottom of seat, $33\frac{1}{2}$ in. Front wheels, 3 ft. 6 in., and hind, 3 ft. 9 in., without the tire. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{3}{4}$ in. diameter. Front bands, $2\frac{3}{8}$ in.; and back, 3 in. diameter. Length of the front bands, $1\frac{5}{8}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $\frac{7}{8} \times \frac{1}{8}$ in., round edge steel. As above mentioned, the Timken springs are used. Width of steel, $1\frac{1}{4}$ in. Number of plates for the front springs, three; and for the hind springs, four. Axles, $\frac{7}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of body, black; and seat and Stanhope-pillar, dark green. The slat-work, as represented in our drawing, is a bright yellow, but a different color may be chosen if desired; or, if extreme plainness is desired, black may then be used. The carriage-part is green, a shade lighter than the seat, and striped with two fine lines of yellow. Trimming, green cloth throughout. The block pattern is used for back and cushion top. One raiser is applied around the fall, about 1 in. wide, and made of the same material as the other trimming. Carpet, plain green, of a dark shade. Mountings, brass.

DEPOT WAGON, WITH CUT-UNDER.

(See Colored Plate No. XXXIX.)

COLORED PLATE NO. XXXIX, with which we supplement our introductory plate, shows a vehicle which has become very popular of late with those who are accustomed to reside in the country during the summer months, being used to convey passengers and baggage from the railway station to their residences, and also for marketing purposes and pleasure driving. The majority of them are made plain in finish and construction. The panels of the body are in most cases without moldings. The wheel-house is often dispensed with, in which case the seats are made to slide; but, in our opinion, the wheel-house is a great improvement, as it allows of shorter turning of the vehicle.

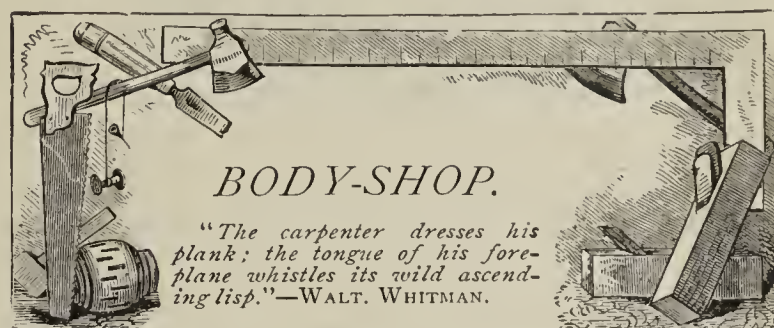
In this drawing we have made a slight deviation from the usual custom of extreme plainness. The body is molded, and has round corners at the back. On the front, an imitation Stanhope-pillar will add materially to the appearance of the job, which may be further enhanced by giving the Stanhope-pillar more prominence by painting it in a bright color—the color of the carriage-part, for instance. The front panel is made high, for the protection of parcels. The hind seat is not stationary, but rests on risers, and can be removed if necessary. Some of these wagons have a baggage rack attached to the back carriage-part. This rack consists of two pieces of square iron, $\frac{5}{16} \times 1$ in. Wooden slats are fastened across the irons by bolts. The back slat is about 1 in. square, and is made of hickory. A notch is cut into this slat for the reception of a leather strap, which is connected with the pillar by screw-eyes. The mode of attaching such a rack varies with different builders. In some cases it is fastened to the spring-bar, utilizing the bolt which secures the body-loop to the spring-bar, while others are fastened to the back cross-bar of the body.

Dimensions.—Width of body on top, 35 in.; at bottom, $33\frac{1}{2}$ in.; ditto top of front seat, 41 in.; and bottom, 37 in.; ditto top of hind seat, 37 in.; and bottom, 34 in. Rocker-plates, $2 \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Front wheels, 3 ft. 2 in., and hind, 3 ft. 10 in. diameter without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Num-

ber spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{1}{2}$ in. diameter. Front bands, $3\frac{1}{8}$ in. and back, $3\frac{7}{8}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 38 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body panels and moldings, black; and the seat, dark green. The moldings are striped with a fine line of Bismarck color. Running-part, Bismarck color, striped with two narrow stripes of black. Trimming, brown leather for the backs and cushions, and brown cloth for the head-lining. Brown carpet, with black figures. Mountings, silver.



BUILT-UP WOOD IN CARRIAGE-MAKING.

WE may as well begin by saying, what everybody will agree with, that in all the woodworking industries there is no place in which wood is so severely tried as in the thin, broad sheets that make up the outside of a carriage; no place in which wood is so frail, by the very necessity of its form; no place in which it has to be secured against hostile influences with so much care; nor in which it fails so often, notwithstanding all the care in selection, in working, in protection by paint, in housing, and in use.

American carriage-makers are peculiarly fortunate in having about the best imaginable wood for their framework: hard, tough, springy, strong—exactly the qualities needed in the skeleton. A jar or blow received in one part it distributes over the whole, and thus diminishes the shock. The wood, by its very character, ekes out the efficiency due to the architectural construction.

Built-up wood is as good for the outside as hickory is for the skeleton. It is tough, leathery, to resist violence; its fibers run crosswise, to resist splitting; it is held together from the inside of itself, to resist checking; it is half saturated with glue, to resist penetration even of air; it is hermetically sealed from all outside influences; and by its very constitution it hangs together. It possesses, in brief, just the character needed for the broad, thin sheets that cover the frame.

Hickory, oak, elm and ash are not new; and yet makers are never done with learning how to work and use them. Built-up wood is new; it is very new in carriage-making; and we feel that we can do no better service to our readers than to get together some of the general facts of its nature and habit, especially some that have lately come to light, and set them forth clearly. We shall not confine our attention to general facts; but rather look to them for guidance in estimating built-up wood for the particular work that claims our interest.

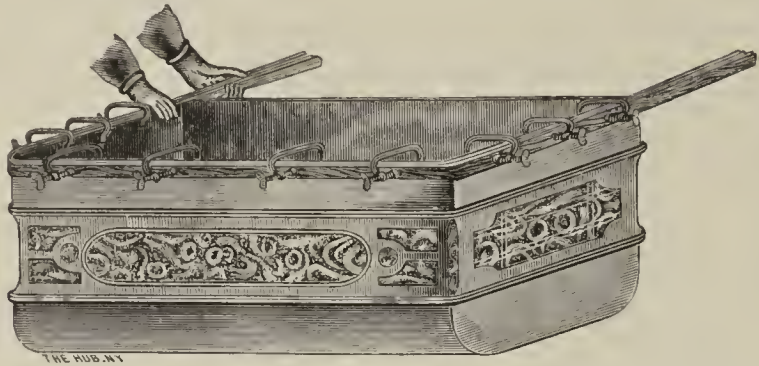
Let us take a preliminary quick glance at the origin of the new fabric.

The first trace of it that has come to our knowledge is in the factory of the Wheeler & Wilson Manufacturing Company at Bridgeport. Their table-tops were there built up as long ago as 1865, with a cheap grade of whitewood inside and walnut outside; and the same construction is followed still. Mr. E. F. French had shortly before come from Vermont to New-York, bringing with him some knowledge of wood, gathered from a varied shop experience; and, happening to look among the sewing machines for a market for his skill, heard of this cheap and good construction. It set him thinking how it was done and what it was good for. He went to Bridgeport to see, and was freely shown everything in the factory by Mr. Wheeler personally; but there was nothing to be learned in addition to what a bright wood-worker might gather from the sight of the table-top itself. He began to do the same sort of work, and to study his fabric in other shapes for other uses. From that time to this he has not ceased to study, invent and make.

Invention in this field seems to be easier than the making. A caller, happening once to find him working on a model of a car-wheel of built-up wood, hooked the thought and rushed off and stole a patent on it; but he didn't know how to make the wheel; and the patent is wearing its time out, idle. Mr. French made a set of wheels which ran 100,000 miles

on a passenger car, and were then as good as new. [The average life of an iron car-wheel is said to be 50,000 miles ; and the spring arising from the elasticity of the built-up-wooden wheel is supposed to be worth an appreciable percentage of the wear and tear of all the rolling stock.] But the patentee couldn't make the wheel, while the inventor had lost the right at law ; and the railway world is still waiting for its best wheel—waiting for the stolen patent to expire. Who then will make the wheel? Naturally the man who knows how, will make it.

It is worth while to stop right here and make a picture to show how Mr. French ties a sewing-machine cover together by a molding of built-up wood around the base.

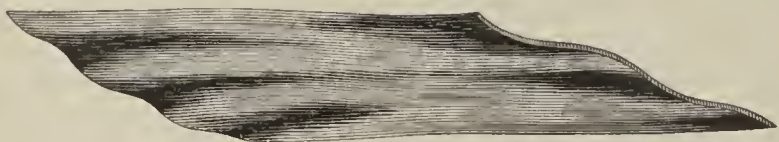


Several ribbons of thin walnut or mahogany veneer, wet with glue, are put one upon another, wound around the cover, and clamped fast. Where one set of ends meets the other set of ends, the cunning workman joins them invisibly. The ribbons, no longer separate, but one heavy strap of built-up wood, is put through a molding machine ; and the cover comes out resting on a pretty base that ties it together more firmly than it could possibly be tied by bands of steel ; and the wonder of all beholders is, how that solid molding ever was bent around the corners of that box ! The cover is not compressed with a crushing force, as it would be by a hoop. The cover is too light to bear a hoop. This method is patented.

Is built-up wood as well suited to carriage-work, do you ask? You saw the solid molding wrapped around that box? Well, we are led to believe that the whole outside of a carriage is going to be turned out of Mr. French's factory by just such deft and easy means as put that molding on. But let us keep to what is already done. The roof is done ; and that is the hardest part of the job.

Step into Mr. French's factory: These piles of whitewood veneers are of selected, straight-grain, clear wood. Lift a sheet. You can't get hold of it. Three or four pairs of hands must take hold on all sides, or it will fall to pieces. It has no shape. It is wrinkled a dozen ways. But now look at this roof. It is made of those limp, wrinkled, uneasy, weak veneers that threaten to come to pieces at the first touch. It is shapely ; it has the rounded sweep of the carriage-top ; it is stiff enough ; it is elastic, springy ; it has a will of its own, and its will is to stay exactly in the shape it is molded in. Though it yields a little, it isn't stubborn ; but it is very strong, and you can jump on the top of it. It is only three-ply of those unpromising, those incredible, those trembling, tortuous, twisting, split-threatening veneers.

What a transformation ! There's the material ; here's the roof. A mere shaving an eighth of an inch thick, four or five feet wide, and six or eight feet long. The wood is clear of knots and imperfections, the fiber is fairly even, the grain is straight, the cut is smooth ; but so wide and thin a shaving never yet did lie flat, or had strength enough to be lifted, unless like a baby. But the roof is symmetrical, goes back with a bound if sprung out of shape ; and, when all sides are held fast, as when laid on the floor, crown upward, it is stiff enough to resist anything but a crushing blow ; and its power of resistance, of course, is all the greater because of its elasticity. It can be turned wrong side out with



pressure enough. Here's a picture of a bit of it, full thickness, showing its construction, grains crossing. It is superfluous to make a picture of the whole roof, because it looks exactly like the top of a finished carriage, all but the paint and varnish, which are not yet on.

We may as well put into words the mechanical explanation of the extraordinary strength of this extraordinary roof. The middle sheet of veneer lies with its grain square across the grains of the other two sheets. The fibers of all the inside wood are compacted and made unnaturally strong with glue, just as shoemakers' thread is compacted and made strong with shoemakers' wax in a "waxed-end." The three layers are so glued into one that they cannot slip one upon another. It is easy to see, then, that every strain that can come upon any part of the roof becomes a lengthwise strain upon the fiber of the wood. For example : If you step on the crown of the roof, the top wood is the center,

around which the under woods are pulled apart by your weight ; and these under woods take the pull lengthwise of their grains. If there were only the top wood, it would afford very little resistance. If there were only one under layer of wood, it would take part of the pull across its grain, its weak way ; and it would be very weak that way. But there are two under layers, and the weak way of one is the strong way of the other ; and so of the compound fabric as it is built-up, there is no weak way.

It is, of course, impossible to guard against violence to roofs and panels. Indeed, violence is not the danger sought to be guarded against. We must take our chance of that. The natural uneasiness of wood is such that, when broad sheets of it are exposed, it tends to warp and shrink and swell ; and this restlessness, if restrained, is apt to show itself in cracking and splitting. Wood is never seasoned so as to be permanently content with its limits. It pushes out and draws in and twists ; and, if it can't move, it splits. How does built-up wood act? Wood shrinks widthwise and lengthwise. Built-up wood has no widthwise. Doubtless the sheets of which it is composed are as uneasy as any other wood, and pull and push widthwise ; but they are stronger lengthwise ; and lengthwise they hold one another perfectly fast ; and so, as a whole, the fabric does not stir—that is, when thus built-up, it does not change. If it does not change, it does not even tend to split. The very nature and life-long habit of wood is turned right about by its being thus tied to itself crosswise. Built-up wood is as different from wood itself, as if it were a different material. It is a different material, so far as the wood is saturated with glue. It isn't reasonable to expect the two to act alike. All the mystery of the steadfastness of built-up wood disappears when one remembers that every way in it is lengthwise the fiber. Of course it is trusty.

Another peculiarity is worthy of remark, though time and experience may have been too short to allow us to speak of it with full assurance. Built-up wood has been used in outside panels of horse-cars for somewhat more than a year ; and the testimony of the car-maker is to the effect that it holds paint enough longer than ordinary wood to make it decidedly more economical for that use. The reason is in its security from checking. Paint is demoralized by water getting behind it ; and this comes of tiny cracks in the wood. Built-up wood does not crack ; and so holds paint with a grip of its own.

Carriage-makers have much to learn of this new fabric ; but it is so clearly an addition to their resources that the sooner they get hold of it, the better. They are not called upon to make it. The making is a matter of special skill, and requires considerable facilities. Probably they can't afford to try to make it. Mr. French's price-list amounts to the general statement that it costs somewhere about ten cents a foot. Probably it saves other first costs ; but to what extent, remains to be seen. It certainly promises to successfully enter into the construction of the best carriages to the full extent of its adaptation ; and it is altogether likely to be sought for by the largest makers, for economy as well as excellence.

The severest test that we could invent, both as to wearing capacity and the economy of construction of built-up wood, is being tried now ; and that is the covering of delivery wagons with it, without canvas. If the makers of common delivery wagons can afford to buy these roofs, everybody can ; and if built-up wood will stand on the top of the common delivery wagon, exposed out of doors in all weathers, it will stand anywhere and anything ; but that is only one degree harder usage than a horse-car gets. That the delivery wagon roof is thinner, only $\frac{1}{8}$ inch, for lightness, has nothing to do with keeping water out. The use of canvas is to cover joints. There are no top joints on the delivery wagon ; and where there no joints there is no need of canvas.

The subject is long and deep. The end and the bottom are by no means to be reached from the office. The help of the body-shop and the paint-shop are required. Study and practice together bring the largest and surest returns. By all means let us all take hold of built-up wood, and find out just what it is good for in our most exacting and troublesome work.

THE CARRIAGE TRACK OF FRANCE.

NEW-YORK, March 11, 1884.

EDITOR OF THE HUB—DEAR SIR: Can you kindly inform us what is the track of carriages made in France.

D.

ANSWER.—Our information on this subject is confined to the facts stated in our January number (page 649) namely : The law prescribes the track of omnibuses to be 5 ft. 5 in. (1.65 meter) for hind wheels, and 5 ft. $\frac{1}{8}$ in. (1.55 m.) for front ; but in practice this is reduced to 5 ft. $\frac{1}{8}$ in. and 4 ft. 5 $\frac{3}{8}$ in. (1.55 and 1.35 m.) The roads are generally excellent, and pleasure carriages are made to all tracks. Our correspondence with Paris builders shows that they pay no attention to any established track, but conform it to the seeming requirements of the particular vehicle in hand.

WORKING DRAWING OF EXTENSION-TOP
PHAETON.

(See Lithographed Plate accompanying this number.)

WE have selected as the subject of this initial working drawing of our new volume, an Extension-top Phaeton, as belonging to a class of conveyances generally popular throughout the country.

The Extension-top Phaeton has been built in large numbers for many years past, and although it lost somewhat of its popularity seven or eight years ago, when it was temporarily supplanted to some extent by Standing-top Phaetons and light Rockaways, it soon regained its former prestige, and has more than held its own ever since. The styles of the body adapted to this build vary greatly in outlines and finish. Some are supplied with doors, but the majority are without them. No fenders are used for the first named, but for the latter class they are necessary. These fenders or wings are generally placed on the front and back, and connected at the bottom with the step, or are placed both back and front without being connected with the steps, or sometimes applied to the back only. In our present drawing, the wings are not connected with the steps, but extend beyond the bottom edge of the body for a distance of two inches only. The suspension of Extension-top Phaetons is effected in several different ways, as on four springs without perch, three springs, two springs, or side-bars. In either of the last-named three methods, a perch is used.

Several changes will be noticed in the outlines of the body we show. The pillar at the back is of the ogee pattern, and extends to the rocker. The back rocker is swept upward at the ends, to prevent too much swaying of the body-loops. The hind seat is made with solid sides, while at the front is a stick-seat with round corners. A combination of these two styles of seats generally has a good effect.

The set of drawings which we present comprises the usual views, namely: Fig. 1 shows the side elevation of the entire vehicle; Fig. 2, the half front view; Fig. 3, the half back view; Fig. 4, the half bottom view; Fig. 5, the side elevation of the body, showing the inside; Fig. 6, the half front view; Fig. 7, the half back view of the body; Fig. 8, the standing-pillar; Fig. 9, the cant; and Fig. 10, a section of the seat, showing the manner of laying off the round corners.

Fig. 1, the side view, gives the outlines of the body, height and position of bows, position of lamps, opening and length of the hind springs, shape of the wings, and the step. The perch is straight, with the exception of a short distance near the hind axle, which is turned upward in order to come on a line with the axle. One of the front steps is clipped to the bottom of the axle, while another short step is fastened under the front rocker. The hind step is of the horseshoe pattern. We will speak more fully of the construction of the body in connection with our description of Fig. 5.

Fig. 2, the half front view, shows the half width of track, size of tire, diameter and length of hub, sweep of axle-bed, half length of spring, and the opening in full, width of the wings, position of lamps, etc. The most noteworthy portion is that showing the front seat, which indicates the shape and dimensions of the Stanhope-pillar, and also the number of sticks and how placed.

Fig. 3, the half back view, like the front view, shows the half width of the track, the swing of the wheels, and the width of the spring from the center. It will be seen that the springs are placed outside of the body-loop, which is done in order to bring them as close to the hub as possible. This view also shows the width of the wing, and how fastened to the body; and the half width of the body in the center and back. At the back, the shape and width of the moldings are shown more particularly.

Fig. 4, the half bottom view, shows details which will be found particularly useful, as it gives the details of the different pieces comprising the gearing more clearly than either of the preceding views, for instance, the back stay, size of fifth-wheel, the lock-plate, and the fastening of the lower front step to the gear. From this view we can also obtain the position of the wheel when turning, so as not to strike the body. The bottom cross-bar of the back part of the wheel-house has to be swept $1\frac{1}{4}$ in., to give enough clearance. The most prominent iron parts fastened to the body are the steps, wings and body-loops. The body shows the projections of different parts, as the front and hind seats, and also the different lengths of bars, etc.

Fig. 5 shows the side elevation of the body only, and in preparing this we have followed the same practice observed by us on our previous working drawings, by showing the body from the inside. The rockers are made of seven pieces. The back rocker is made of 3 in. ash, and is swept from the outside. The inside is straight. This will give a good foundation into which to frame the corner-pillar and cross-bar. The rocker can be lightened out on the inside from the cross-bar, after framing, to the same thickness as the other rocker, which is $1\frac{1}{2}$ in.

The corner-pillar is framed into the rocker, but we would not advise mortising the tenon through, as the pressure of the body-loop against

the tenon would then be more liable to force the pillar from the joint; and the shrinkage of the rocker in thickness would leave the end of the tenon projecting out of the bottom of the rocker, for it is well known that timber is not as liable to such changes in an endwise as in a cross-wise direction. The cause of the trouble of having tenons project out of the rocker is often attributable to the smith, who is not sufficiently careful in fitting the body-loops, and thus chars the wood, which naturally affects more seriously the long grains rather than the cross grains or end; and thus the joints are apt to open shortly after the vehicle leaves the shop.

The inclination of the middle rocker is shown in Fig. 8. This rocker is mortised through the bottom rocker, and is $1\frac{3}{8}$ in. thick. The tenon is gauged off from the outside of this rocker. The mortise will have to be pricked off, as shown on Fig. 8, where the shaded lines represent the mortise.

The back rocker of the wheel-house inclines, and the amount of this inclination is shown by the line A, while line B shows the inclination for the rocker forming the front rocker of the wheel-house. The bottom rocker and toe-board rocker at the front are both inclined and contracted.

The dividing piece between the rocker and top face of the side panel is lapped into the upright rocker at the front of the hind seat even with the inside, and mortised into the corner-pillar. It will be noticed that, when deducting the turn-under from the outside sweep line at the end of the body, it would make the body several inches narrower at that point, which is not desirable, as it is the object to bring the springs as close as possible to the collar of the axle.

To lay off the corner-pillars properly, we must proportion the side sweep with the turn-under by means of the proportional triangle. These lines are given on the cant. A full explanation of the method of doing this will be included in the description of the working drawing of a Spider Phaeton, which will follow in our May number. The same principles there explained will answer as well for this drawing.

Thick whitewood is used for the sides, and a thin panel for the back. A good way to fit the panel is to gauge off $\frac{7}{8}$ in. on the front face of the corner-pillar from the outside, and then fit the sides to it. A thin panel is glued across the body under the front seat to the width of 8 in. A bar is fitted between the plates, and glued to the panel, forming the wheel-house; and the upper or inside panel is glued to this bar. The seat-rail for the back seat is simply screwed on top of the rocker.

Figs. 6 and 7, the half front and half back views of the body, are mainly repetitions of Figs. 2 and 3, but show the body more plainly.

Fig. 10 shows how to lay off the round corner for the seat-frame. A represents the center line or half width of the seat; B, the front of the seat-frame; C, the outside line of the seat-rail on the sides; D, the outside line of the seat-frame on the side; E, the outside line of the seat-rail on the back; and F, the outside of the seat-frame at the back. Draw a line G through the intersection of lines C E and D F, until it intersects with the center line A at point H. Then draw the round corner on C and E at option. Draw line I from C to E, touching the curved line from the intersection of line I with C and E; then draw lines J and K, from the intersection of line I with C and E, to point H. Draw line L from the intersection of J and K with D and F. Then draw in the round corner, touching line L in the center. This simple method we have always found to work satisfactorily.

We selected a vehicle of the lighter class for this introductory working drawing in our new volume, for the reason that there is a far greater demand for drawings of light work; but we propose, later on, to introduce similar working drawings of the medium and heavier grades of vehicles.

ALBERT KEHRL.

EDITORIAL RESPONSES TO CORRESPONDENTS.

To H.: No, there is no arrangement by which postal-cards can be mailed to New-Zealand. The letter postage is 12 cents per half-ounce.

To L. M.: If the drawing you have prepared in expectation of competing for the prizes of the Carriage Builders' National Association, represents a Phaeton or Buggy of any kind which physicians might be expected to use, why not utilize it in connection with *The Hub's* prize offers, as described in this number?

To S. K.: The new Paris paper to which you allude is entitled *Publication Périodique de Dessins de Voitures*, which might be freely translated as "The Periodical of Carriage Fashion Plates." It is published quarterly, by Ch. Gourdin, 21 Avenue de la Bourdonnias, Paris; and each number is an album containing four colored plates, in about one-half inch scale, without any letter-press.

To C., of Indiana: There is no probability that the Executive Committee of the Carriage Builders' National Association will make any prize offers for drawings this spring, partly owing to the indifference which has been shown to these offers in past years, and partly because they may decide to expend a part of the money heretofore devoted to this object, to prizes in connection with the Technical School.



CARRIAGE-PARTS, WITH SPECIAL REFERENCE TO PLATFORM WORK.

LECTURE BY MR. H. G. SHEPARD, OF NEW-HAVEN.

[The following is a full stenographic report, expressly prepared for *The Hub*, of the lecture delivered by Mr. H. G. Shepard, of New-Haven, Conn., on the evening of Wednesday, Feb. 20th, before the Class in Carriage Drafting and Construction connected with the Metropolitan Museum of Art Technical Schools, New-York.]

INTRODUCTION BY CHAIRMAN BRITTON.

GENTLEMEN: To many of you, especially the members of the class, the lecturer of this evening is already familiar. We remember with pleasure the admirable lecture he gave us last winter, and I am quite sure that to-night he will interest you in a still greater degree. I now have the pleasure of introducing to you Mr. H. G. Shepard, of New-Haven. [Applause.]

OPENING REMARKS BY MR. SHEPARD.

Mr. Chairman and Scholars of the Technical School: You must not expect too much of me to-night. The notice of this meeting, for which I am not responsible, would lead you to believe that I was coming with a written address, and with a stereopticon and bundle of views to illustrate what I would say. Such is not the fact. I have merely come to have another of those plain familiar talks with you; and if you are expecting very much, I ask you to lower your expectations, and make your disappointment less.

The subject upon which I propose to talk to-night is that part of the vehicle called the carriage-part, or running-part, or gearing.

It can with propriety be called the plebeian part of the vehicle, for it is that part which does the hard and dirty work, while the aristocratic body with luxurious appointments rides upon its willing shoulders; and, like all plebeians, its first great need is strength,—strength to bear burdens, and endure hardships. This brings us at once to the consideration of the materials of which it should be composed, which are wood and iron.

TIMBER FOR CARRIAGE-PARTS.

In regard to the wood, allow me to say right here, while I think of it, that the timber does not grow, and never will grow, too good for the running-part of any vehicle, whether for business or pleasure, or whether it has wheels or runners. Please remember this, scholars, for it is the most important statement I shall make to-night; and if you remember it and act upon it as you have occasion, you will be well paid for coming here, and I shall feel that my visit has not been in vain. I will repeat it: *The wood does not grow, and never will grow, too good for the running-part of any vehicle, whether for business or for pleasure.*

In this statement I include all that part of the gearing which is back of the body, under the body, and in front of the body; but I would especially apply it, and most emphatically, to whiffletrees, shafts and poles. I know of no more dangerous position in which a man and his family can be placed, than to be going down a bad hill, behind a pair of spirited horses, and have the pole snap in two. I should prefer to be in a railroad accident, and take my chances there.

You may ask what I mean by "good timber" for this purpose, because timber which is good in one place in the carriage may not be good in another. Poplar, or whitewood, as it is called, makes good panels, but it would be good for nothing in the carriage-part. There are certain requirements of the carriage-part, certain elements we want there, which we must provide in the materials of which it is constructed, or they will not be there. The union of wood and iron is not alone sufficient. We need, as I said before, strength. We need stiffness, also. We need durability, also. We must look for these requisites in the timber first. We must find timber that is strong, that is hard, that is stiff, that is durable. These terms are not interchangeable; they are not synonymous. Wood may be stiff, and yet be brittle and soft; we find these two qualities combined in the Western ash. It is stiff enough, but it lacks in hardness and in strength. Our best second-growth Eastern ash and hickory we find best adapted to this purpose. In any case we cannot trust to name alone. Hickory may be good, or it may be poor. It may have qualities which we need, or it may lack them entirely. I have here some specimens

which I think will illustrate this point. I may be mistaken in my judgment of these specimens, but I have good, bad and indifferent here, and I have sorted them according to my opinion of their qualities. I will try and see if my judgment is correct.

[The speaker here took up a spoke for the purpose of illustration.]

I think this is an ordinary piece of hickory. I will try it. [The speaker here broke the spoke across his knee.] It breaks in two. It shows a fair degree of toughness and strength, and yet it is none too good.

[Takes a second spoke.] Here is another one of about the same quality. [Breaks it.] It is a little better than the other.

[Takes a third spoke.] I think this is poorer. [Breaks it short off.] It proves to be so. It broke without slivering.

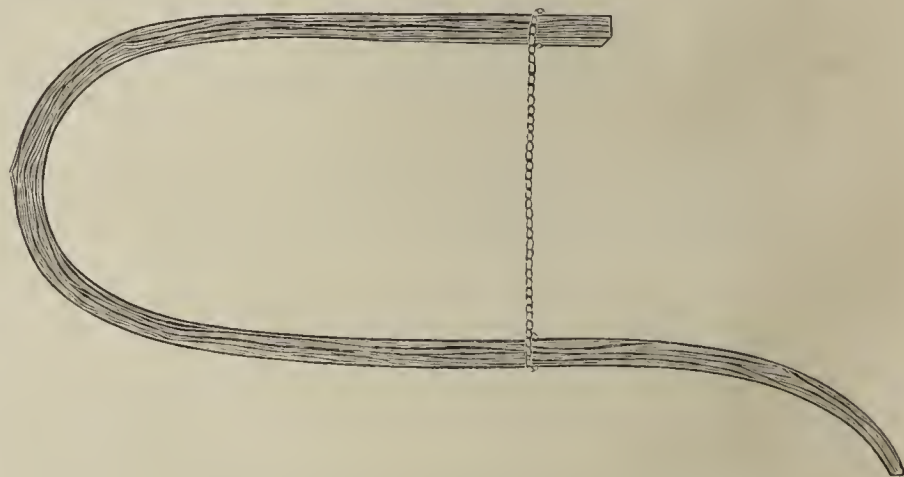
[Takes a fourth spoke.] Here is another. I have not much faith in this one. [Attempts to break it.] It is better than I supposed. [Succeeds in breaking it.] It comes in two.

[Takes a fifth spoke.] Here is one which I call good,—excellent. [Attempts to break it.] It does not come! [Twists it backward and forward until it "brooms" and finally separates.] You see, although it is the same kind of wood, namely, hickory, yet there is a vast difference in its strength, as compared with the others.

[Takes a sixth spoke.] Here is another first-class one. I don't believe I can break it. [Tries, but fails.]

[Rubs his knee.] I think I don't care to carry this series of experiments any further. [Laughter.] It is an excellent spoke. There is one more good one left, but I will leave that for the boys to practice upon. [Laughter.]

Now, if we can get the very best of this timber, hickory, we certainly cannot do better. There is nothing which equals American hickory for spokes, light felloes, whiffletrees and shafts. I have a shaft that I brought here to break, in order to show you what good hickory will do, and what it will stand. I wish some of you would help me, as I don't feel very strong to-night. [The speaker here laid the shaft on the floor.] If some of you will help me bend this over, I will be very much obliged. It will need some good strong boys. [Four boys took hold and attempted to break it; but, not succeeding, another took hold, and, with the assistance of the lecturer, the shaft was finally bent to a half-circle, without breaking, in which form it was secured. See cut.]



That gives you an illustration, gentlemen, of what good hickory will do. You see it is tougher even than some of the fish stories told at the Carriage Makers' Retreat in your city. [Laughter.] By the way, I believe I will donate this shaft to that institution, to be given to the one who tells the greatest—I would like to say "lie," but I will call it a "fish story." I think Ernest Brantford will get it if the weather is favorable. [Laughter.]

By the way, I expect that both scholars and visitors here will ask me questions. I want you to ask a good many. I would like to have you take one-half of the time. I think that would be more interesting than for me to take all the time.

I have written here [pointing to the blackboard behind him] the headings of the subjects which I wish to talk upon to-night. They are: First, Timber for carriage-parts; second, Harmony between the carriage-part and the body; third, Harmony between the various pieces of the carriage-part; fourth, Ironing carriage-parts; and fifth, Common faults in construction.

I have thus far been speaking of the first of these, the timber. I have not said all that I intended to, but I will wait a moment to give a chance for any of you who may wish to ask questions. This is the most interesting part of my subject, I think. Have you any questions you wish to ask?

I wish Mr. DuBois were here. I have a bone to pick with him. Some three or four years ago he wrote an essay upon the subject of wheel-making, competing with others for a prize offered by the Carriage Builders' National Association. He received the first prize, and was entitled to it, because he wrote a very worthy article; but I was very sorry for one statement he made. He said the best hickory in the world grew in New-Jersey. Now, as an American, I don't like to hear any one advocate the importation of hickory; and as a New-England man, I feel disposed to dispute the claim, for I believe you will find as tough

specimens of hickory and humanity in New-England as in any part of the world, New-Jersey not excepted,—or excepted, perhaps, only in regard to the human element. [Laughter.]

END-COMPRESSED TIMBER.

If there are no questions you desire to ask in regard to timber, I want now to show you some timber I have here which has been so toughened, by a process I will tell you about later, that you are not likely to recognize it. Here, first, is a piece of whitewood. It is tougher, Mr. Chairman, than the ordinary ash, and yet whitewood is not considered a tough wood. It has been toughened to a degree almost equalling that shaft we tried to break. And here, [taking up another piece of wood] is some of the same piece of whitewood that has not been subjected to the same process. You see, Mr. Chairman, they are quite different in their qualities now.

MR. BRITTON: What State did this grow in?

MR. SHEPARD: In Connecticut. Here, again, is a piece of ash [takes up another piece of wood] that has been subjected to the same process. It is tougher, gentlemen,—tougher than a boarding-house beefsteak. [Laughter.] I believe the time will come when our carriage poles will be manufactured out of a kind of wood that is to-day considered very common and very inferior. This ash is toughened to a degree you can hardly realize. The secret is this:—it was toughened by steaming it and compressing it endwise. You can see how straight the grain is of the uncompressed pieces; and perhaps you can see how tough the other piece is.

It is only within the past week that I have been able to form an opinion, satisfactory to myself, with regard to the cause of this remarkable change caused by steaming and end pressure. By using a microscope I believe I have finally discovered it. I find that while the compression is being applied, the fiber of the wood is not broken, but the cells are compressed so that the sides come together. As you all know, there is a natural gum in the wood; and this being compressed together, while it is hot and pliable, the result is that the woody structure is as truly welded together as any two pieces of iron ever were. And I believe it is perfectly practicable to make even carriage poles out of this same ordinary poplar or whitewood, by subjecting it to this process. I don't know but we shall have to do this, for our high-grade white-ash and hickory are becoming very scarce, and, at the present rate of construction, they will soon be used up.

A MODEL SHAFT.

While we are still on the subject of timber, I want to show you something I have brought in the shape of a shaft. I have here a pair of shafts. [Producing them.] The shaft which I now have in my hand is the mate of the one which we attempted to break. I consider this timber good, but none too good for the purpose.

Please notice the design of this shaft. It is of even width right through, $1\frac{5}{8}$ inch. The finish, you will see, is different from what some use. The object of the finish is to show that it is not a machine-made shaft. It is hand-made. The object of making it of even width through here is two-fold. One reason is, that it can be no larger than at the futchels, and $1\frac{5}{8}$ inch is as wide as futchels are made for the reception of the heel of the shaft; and as that is the point at which the strain comes, it is useless to make it larger beyond there. But by making it of even width straight through, it can be plated easily with band-iron of the same width, and we then make the finish here with a bead. In this form it is easier to iron, it is practical, and, from my standpoint, it is the best way a shaft can be made.

Are there any questions to be asked on this timber subject? [After a moment's pause.] Well, now, I expected you would be full of questions to-night.

HICKORY FOR LIGHT CARRIAGE-PARTS.

MR. BRITTON: I would like to ask you if you would advise using hickory for light carriage-parts? I think you omitted to speak of them. You recommended it for spokes, whiffletrees, poles and shafts. Now, for light carriage-parts, do you know of any wood superior to hickory?

MR. SHEPARD: I do not. I thought I referred to that. I intended to in the general statement I made, when I advised the use of the best of wood for all parts of the gearing, whether back, under, or in the front of vehicles. I meant to include all kinds of vehicles, light and heavy. Certainly, there is nothing, in my opinion, that excels our best hickory for the purpose of light carriage-parts. Ash does not fully take its place. Ash is an excellent timber, and has very valuable qualities; but for light spokes and light axle-beds, we must have hickory.

WHAT WOOD IS PREFERABLE FOR SIDE-BARS?

MR. HOUGHTON: How about side-bars?

MR. SHEPARD: I prefer other wood for light side-bars, for the reason that hickory, although the strongest, is not the stiffest wood. It has not the elasticity that ash, or locust, or what we call ironwood, has. Ironwood seems to be very popular now for side-bars, and I think justly so;

although when we can get the right kind of ash,—heavy and with fine grain,—I think there is nothing superior to that. Some of the best carriage-makers I know of, will use nothing but the best quality of ash.

The best ash is that which is heavy. This is the best criterion I know of in judging of this timber, or, indeed, of any timber, whether it be ash, hickory or any other; although I noticed, not long since, that some idiot wrote to one of the trade papers and expressed the opinion that weight was no criterion at all. Now I am willing to stake my reputation as a judge in this matter, that weight is the very best test that can be applied. It is the density of the wood that indicates its strength. If you select a piece of wood that is heavy, and has been properly treated, there is no doubt in regard to its strength. Those spokes I experimented with, I sorted by their weight; and, with the exception of one of them, they proved just about what I expected. The same is true in regard to those shafts. You will find them very heavy.

On the other hand, if you select a piece of light wood, you will find it soft, and that wood will not do for a carriage-part. No matter how stiff or strong it may be, if it is soft, it will not answer for that purpose. It will yield under the head of the bolt; it will yield under the pressure of the clip, and things will soon get loose and shaky. The wood must be *hard*, in order to hold the iron and bolt; it must be *stiff*, in order to keep its place; and it must be *strong*, in order to sustain the strain that is placed upon it.

MR. BRITTON: Twenty years ago hickory was used almost exclusively for side-bars. The trouble with them was not that they failed in toughness or strength, but they would settle. Do you believe in the theory that they settle chiefly in very hot weather, and that the thermometer has something to do with it?

MR. SHEPARD: I think one reason why they settle most in hot weather is because they are mostly used at that time. Then, again, as we all know, hot summer weather is usually damp weather, and the atmosphere will affect wood, whether painted or not. I cannot really understand how atmospheric influences so readily penetrate through the paint, but they do. In the summer season we have a damp atmosphere. Dampness and heating together affect the wood, making it more pliable or limber,—having the same effect, to a certain extent, as steaming would. It is by sagging down that hickory side-bars fail; but ash stands up under pressure, and so do the other woods that I mentioned, ironwood and locust.

COMPARATIVE WEIGHT OF FINE-GRAINED AND COARSE-GRAINED HICKORY.

MR. FITZ-GERALD: What is your experience as to the comparative weight of coarse-grained second-growth hickory, and fine-grained hickory, such as mountain growth, or that grown in a less open position? Which is the heavier of the two?

MR. SHEPARD: It depends entirely upon individual specimens. Usually, fine-grained hickory is lighter than the coarse-grained, and yet that is not an absolute rule. When you can find fine-grained hickory having equal weight with the coarser, the fine-grained is preferable every time. It will keep its place better, and it is really stronger than the coarse-grained of equal weight. It is consequently better for side-bars. As a rule, however, we find that the coarse-grained hickory is heavier and stronger.

MR. FITZ-GERALD: Would you recommend the coarser-grained for spokes?

MR. SHEPARD: I would not, providing the finer-grained of equal weight could be had.

MR. FITZ-GERALD: I refer to the average as we find it.

MR. SHEPARD: I should not reject a spoke because it was coarse-grained. The coarse-grained is apt to be more limber than the finer grained, but if you subject it to a thorough kiln-drying process, you will stiffen it to a degree that is sufficient for spokes, even light spokes, and then you will have something that is very stiff, strong and hard. On the other hand, if I were going to select spokes for exhibition, I should of course prefer the fine-grained.

MR. FITZ-GERALD: In that case you would not be governed by weight?

MR. SHEPARD: Only in part; but in selecting between two specimens of equal weight, I certainly would give preference to the finer-grained for any purpose about a carriage.

MR. BRITTON: Without making the assertion positive, you seem inclined to put New-England hickory ahead of New-Jersey hickory. Have you never had occasion to notice that some New-England hickory, grown for example in New-Hampshire, is so hard that when used for rims, it will check at the spoke tenon?

MR. SHEPARD: I hardly think hickory would check merely on account of its being hard. My experience is that, the harder the hickory, the tougher it is and the more difficult to split. I would not desire to be understood to say that no good hickory grows except in Connecticut.

MR. BRITTON: I understand that.

MR. SHEPARD: But I do believe that the very best specimens in the world grow upon the sea-shore of Connecticut. I will challenge New-

Jersey, or any other part of the world, to produce hickory superior to that shown in those shafts there; and yet I believe I can find Connecticut hickory superior even to that in point of strength. These particular shafts were selected on account of their straight grain and whiteness, and because of their general fine appearance; but even tougher hickory can be found. I hope all present will not be afraid to ask questions.

MR. BRITTON: Here is another. Have you ever noticed whether the strongest and best hickory grows in a Northern or Southern exposure?

MR. SHEPARD: That is a question I have thought a great deal about. A farmer will come to us and say: "I have some excellent hickory; it grew on the top of a hill, where the wind could blow over it and toughen it up." You know we often hear of the oak being toughened by exposure to the wind and storms. Another farmer will come and say: "I have some of the very best hickory; it grew down in the valley where the soil is moist." Each thinks he has the best hickory in the world. My own observation leads me to believe that locality makes but little difference. I have found the very best of timber upon the highest hills of New-England, and I have found the very poorest growing close beside it; and the same is true in regard to hickory growing in the valleys. The best and the poorest grow together, even of the same varieties. Take two shag-bark hickories, or any other variety, growing side by side and apparently under the very same conditions; and oftentimes their timber will hardly appear to be related at all. It does not seem to be locality, so much as the individuality of the tree itself, that gives quality. It is something I cannot explain.—(*To be continued.*)

HOW TO MATE COUPÉ SHAFTS.

THE mating of Coupé and Village Cart shafts is ordinarily one of the most vexing and unsatisfactory jobs done in a carriage shop. The reason is this: There are so many bends (four) that the changing of one bend by straightening will affect another enough to throw it out of place. This so confuses and disappoints the workman that he is glad to get them somewhere near alike and let them go at that.

This difficulty may all be obviated, and perfect mates secured, by going about it in the right way, which very few, if any, ever do. The usual method is to put the shafts in their natural position, and then look at first one and then the other, guess at which has the most belly, the most rise, the most turn-off at the points, etc., and then straighten them until they look nearly right, without having any absolute knowledge in regard to them.

Now it is just as easy to tell whether they are alike or not, as to tell the same in regard to two straight shafts, and it is just as easy to make them alike if they are not so, as it is to make two straight ones alike that are not so. It can be done in the following manner:

Place the shafts upon the floor in their natural position, with the exception of bringing them close together. Now, by pressing down on the straight or back ends of the shafts, and looking at the tops of them in front, you can tell at a glance and to an absolute certainty, which, if either, has the most rise. Then straighten the highest until it matches the other. This process is shown by Fig. 1.

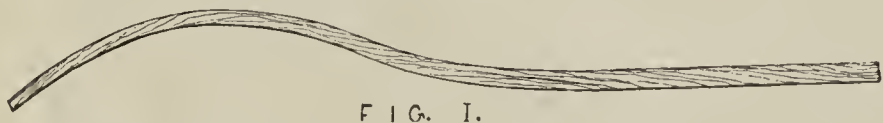


FIG. 1.

The side bend or belly is tested in the same manner, by placing the shafts on the floor with the outsides down, and the top sides together, noting the elevation of the front ends, and, as in the other case, straightening the highest. See Fig. 2.

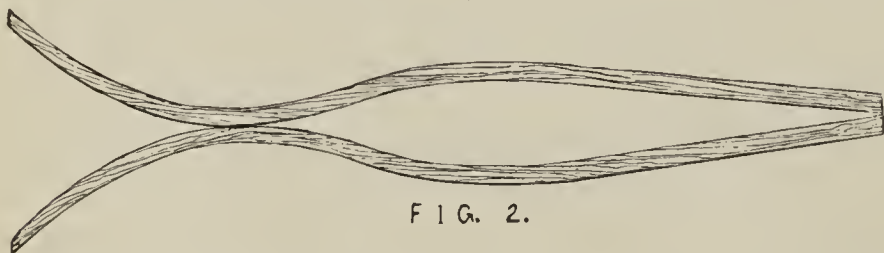


FIG. 2.

To obtain perfect mates in regard to bend in front, place them on the floor close beside each other, with the top sides down, and the insides towards each other. Now roll the points together, and the difference, if any, is very apparent. If not alike, straighten the one with the most bend, as in the other case.



FIG. 3.

Now, while they are still lying close together, and are well mated, mark across the points where you wish to cut them off. See Fig. 3.

The shafts are now well mated, with the exception of the turn-off on the points. Whether this is alike or not on both shafts may be seen by taking them after they have been sawed off as directed above, and placing them on the floor, outsides down, and bottomsides toward each

other, so that the tip ends of the points will come together, and if they are not alike it can be readily seen how to fix them. This position is shown by Fig. 4.



FIG. 4.

It has taken a good many words to describe this process, but it will not take more than two minutes to execute it. Once tried, its superiority over any other will be seen at once, and I have the confidence to believe that it will be adopted by all the readers of *The Hub* who are wide-awake enough to avail themselves of the useful information given in the "How Papers" of your popular and valuable publication.

I wish to add a few words in regard to "laying out" coupé shafts. It is customary to square them by measuring from the heel of one shaft to the point of the other. This should not be done. Instead of measuring to the point, a mark should be made on the shafts at about where the tugs come, and then square from that to the heel. H. G. SHEPARD.



HOW TO FURNISH A CARRIAGE BLACKSMITH-SHOP.

A SUBSCRIBER asks us to "please name the best tools to get for my new blacksmith-shop, what they will cost, and what I ought to have."

After you have built your forge, you want a tuyere; and we are told that one of the best is that made by Mr. Bayliss, of Stamford, Conn., who supplies two kinds, the wet and the dry tuyere. A practical smith of this city recommends the dry tuyere as best adapted to all conditions and climates. It is easily set, and never requires resetting until worn out. Mr. Bayliss also supplies a superior bellows. The old-style bellows has seen its best days. Mr. Bayliss's "Hurricane Bellows" is novel in form, being circular, and takes up but little room. It gives a nearly continuous blast, and discharges about twice as much forced air as any pear-shaped bellows containing twice the cubic air space.

You cannot well get along without an anvil, and there are a number of good makes in use. Some prefer the Peter Wright anvil, others the Wilkinson, and others still the Eagle. The Wright and Wilkinson are of English make, while the Eagles are made by Fisher & Norris, Trenton, New-Jersey, and may be obtained at a much less sum than the imported. The Eagles, we are informed, are made by a novel process, in which cast-steel is welded to an extra quality of cast-iron, known as gun-metal, and the face and horns are of best cast-steel. Some of those who have now used the American make for over twenty years sound their praises highly, and we feel fully authorized in recommending them.

While at Trenton, looking up the anvil question, please remember, also, that blacksmiths ought to have at least two vises, one for forging, and another for finishing; and Fisher & Norris have the reputation of ranking among the best vise-makers in this country. When you buy one of their anvils, you may as well try one of their vises.

You will also want a tire-bender; and our observation leads us to believe that English & Mersick, of New-Haven, have as good a one as any. It is called the "Killam Tire-Bender."

While at New-Haven, you may as well buy from the same firm one of their "Carlton Axle-Gauges," which is, according to all accounts, a very useful tool for the carriage-smith.

You cannot well get along without screw-cutters, dies and taps, and the Wiley & Russell Mfg. Co., Greenfield, Mass., can fit you out in this line with anything you want. You will do well, also, to secure from them a hand bolt-cutting and nut-tapping machine, having a plain screw-plate with interchangeable dies, or their "Lightning" screw-cutter, which you can fit into a bit-stock and thread bolts in a trice. They can also furnish you with twist-drills, taps and box-wrenches, and a tire-shrinker.

There are several good file-makers in Newark, N. J., and you will probably meet with no difficulty in filling your requirements in this line. One of our subscribers says he has no hesitation in recommending John Roy, of 67 New-Jersey R. R. Ave., Newark, as one of the very best file-

cutters for carriage-makers, and that he is prepared to sell at a better figure than any other.

Next, you want a bolt-clipper, and nearly every carriage blacksmith in the country knows that "Chambers' Bolt-Clipper," or the "Easy Bolt-Clipper," made by Porter & Wooster, Boston, Mass., will either of them fill this bill. There are three sizes, and the middle size is best for general uses.

There is a hammer company in Newark, N. J., called the "Iron Age," we believe, who make all kinds of tools such as hand-hammers, riveting-hammers, chisels, flat-hammers and sledges, and about fifty per cent. cheaper and seventy-five per cent. better than you can make them. They are supplied in all shapes, sizes and weights.

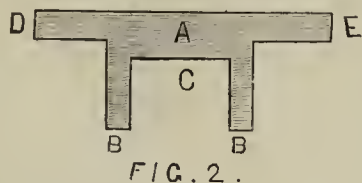
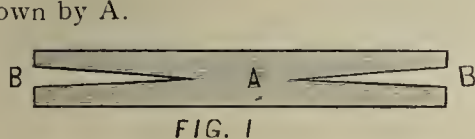
You will also want a drilling machine, and we refer you to the business pages of *The Hub* and *The Hub Almanac* for those best adapted to the uses of the carriage-smith.

You had best go to the nearest iron foundry for a tire-flag on which to set your tire.

In the above we have endeavored to cover all your questions; but if we have left any unanswered, whether expressed or not, write us again.

HOW TO MAKE FIFTH-WHEEL HEELS.

To make the heel for a bottom fifth-wheel, and have a projection in front, take a piece of Norway iron, or any other good iron, of the shape shown in Fig. 1. Cut in or split this piece, as at B B, leaving the body as shown by A.



Heat again, and then, with proper tools, shape it as shown in Fig. 2, where A represents the bearing portion on the bed; B B the parts for forming the clips; D the back end; E the front end; and C the space between occupied by the axle-bed. Form the clip ends to suit the requirements of the job. Then weld in the center, and bend.

GEARING SUITABLE FOR PHYSICIANS' PHAETONS.

(See Illustration accompanying.)

THE proper construction of such a gearing, especially the ironwork, is a problem requiring study and long experience; but the accompanying cuts suggest many useful hints, representing a plain yet serviceable gearing which has been found well adapted to the purpose.

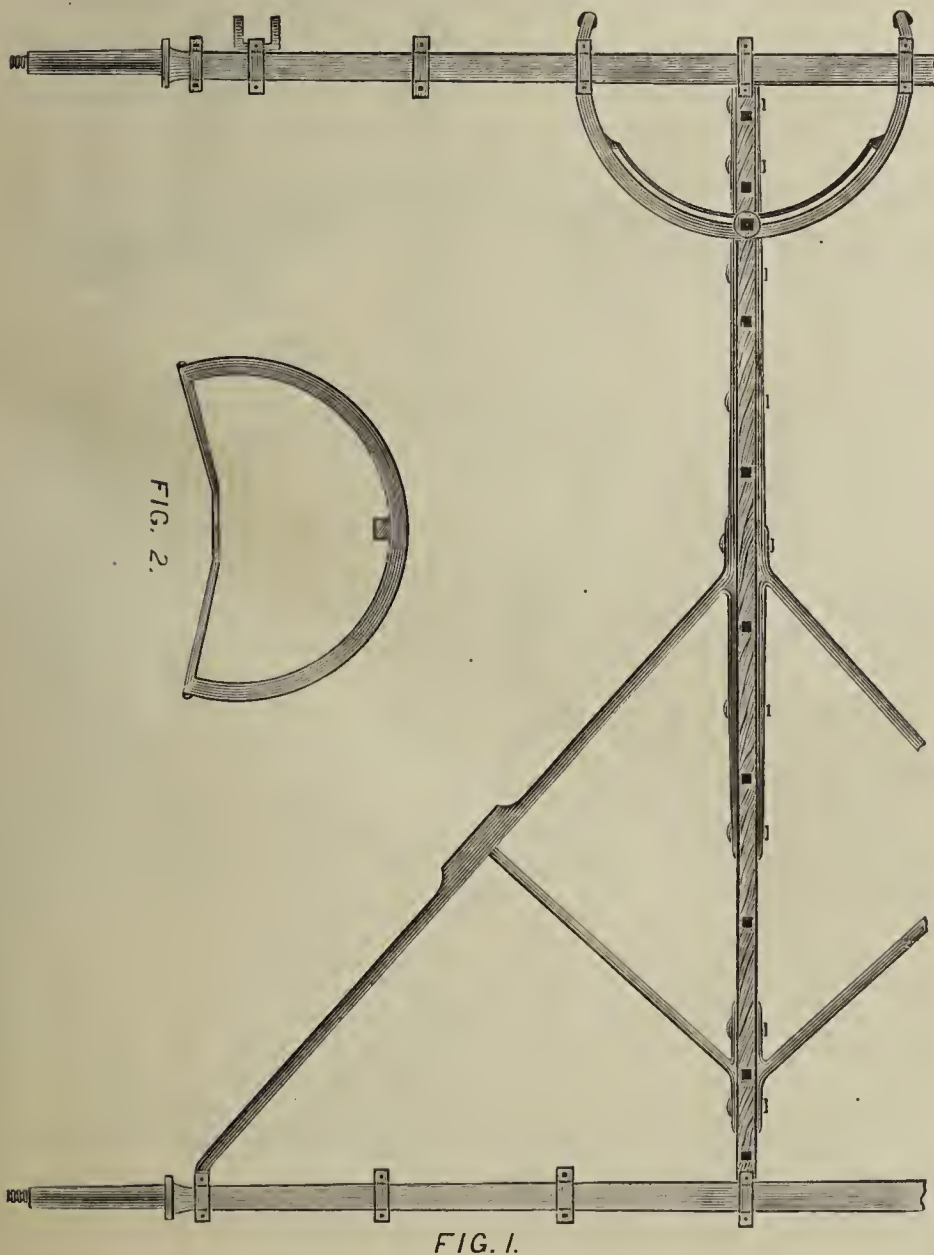


Fig. 1 illustrates the bottom view of the gearing; Fig. 2, the top fifth-wheel; Fig. 3, the side view of the sectional cut, the perch, fifth-wheel

and anti-rattler; and Fig. 4, the bottom view of the sectional cut of the fifth-wheel and the anti-rattler. Figs. 1 and 2 are drawn to the scale of 1 in. to the foot, while Figs. 3 and 4 are in full size.

Fig. 1 shows the general construction of the gearing, and indicates the sizes of axle-beds, perch, fifth-wheel and back-stays. The stays are straight, thus requiring less work, and being stronger than swept stays would be. The wear-iron is welded solid to the stays. The bottom fifth-wheel shows the slot for the bolt holding the anti-rattler fixtures in their place.

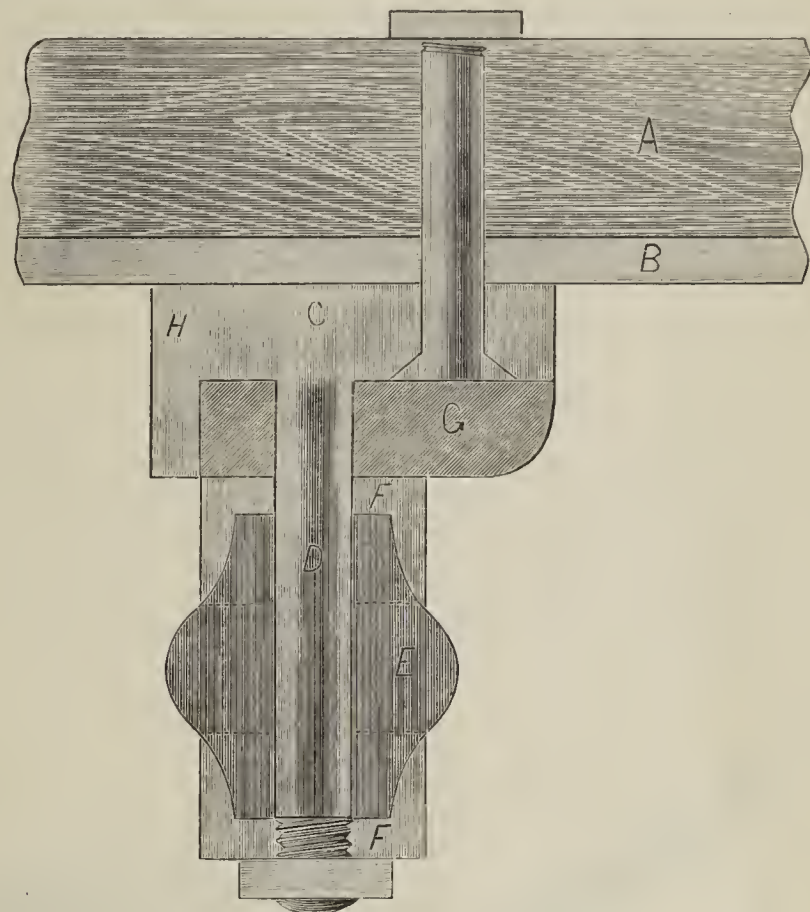


FIG. 3.

Fig. 2 illustrates the top fifth-wheel, with the safety-hook attached.

Fig. 3 is drawn the full size. A is the perch, and B the bottom plate of the perch, C shows the top fifth-wheel, and D a bolt. This bolt is welded to the top fifth-wheel. E is a piece of rubber, and F F are two brass cups. These cups, as will be seen, inclose the rubber E. G represents the bottom fifth-wheel, and shows the slot, and also the bolt connecting the top and bottom fifth-wheel, and the anti-rattler. H represents the safety-hook.

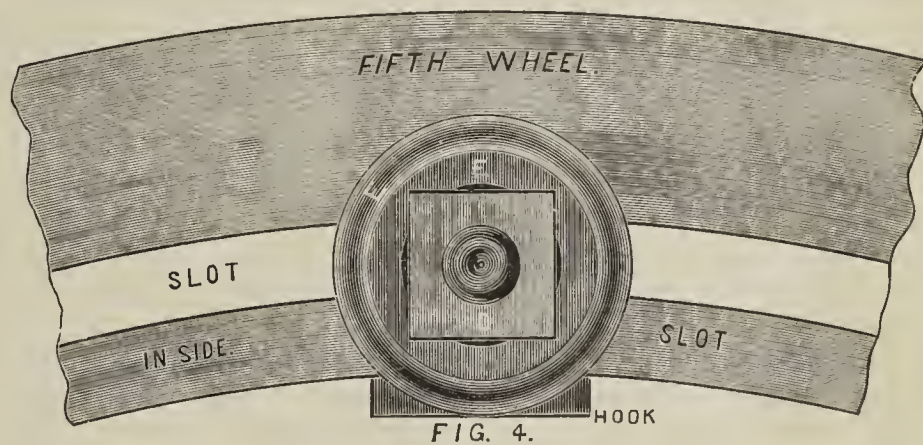


FIG. 4.

Fig. 4 shows the bottom face of the bottom fifth-wheel, and includes the rubber E, the brass cup F and the bolt D, with nut attached.

We abstain from any further explanation, as our drawings are so clear that they will be readily understood by every practical reader.

HOW TO BEND ROUND OR OVAL IRON TO SHORT CORNERS.

If you wish to bend round or oval iron to a short corner, you must do so with the aid of water.

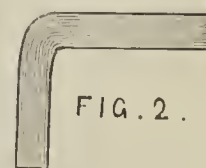
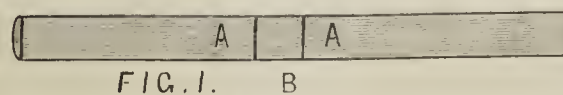


Fig. 1, accompanying, shows a piece of round iron. Heat the place at which you wish to have the corner, as B at A A, Fig. 1; then cool on both sides, as at A A, and bend; and you get the result shown in Fig. 2. It is best to upset a little before bending.

Just try this method once, and see how much better and quicker you can do it than by the ordinary way. Then please go and tell Jim, Dick and Harry that there is occasionally something to be learned by reading *The Hub*.

HOW TO PUT A KING-BOLT ON AN AXLE-BED.

It is well known that fifth-wheels of the lighter grades of carriages wear out faster over the axle-beds than at any other point. To avoid in part this wearing out at the point mentioned, it is requisite to know how to put the bolt on.

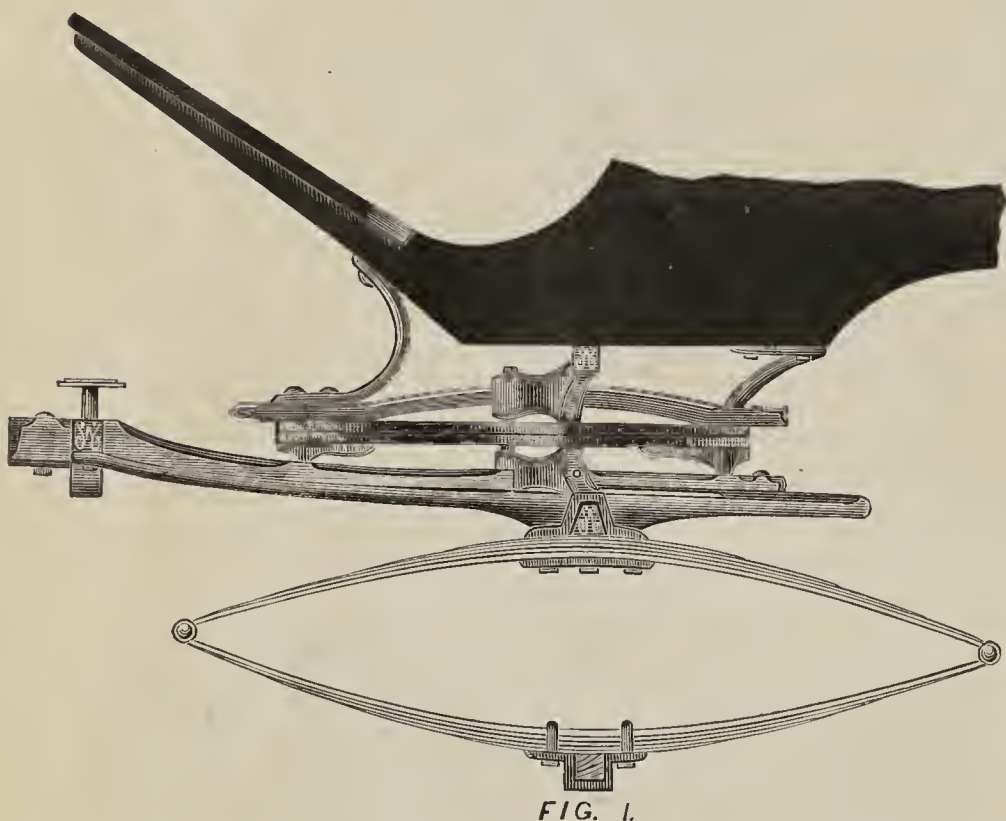
First, put the fifth-wheel on a level and square with the bed. Make a circle with the compass; then put the king-bolt on in such a manner that, if you draw a line through the center of the axle-bed perpendicularly, the king-bolt will lean backward at least a full $\frac{1}{16}$ inch. If the king-bolt hole is straight through the head-block, and the fifth-wheels are level, the fifth-wheels will then come together quicker at the back than at the front, and that is the place where the pressure is wanted in order to make them wear alike all around, or as near that as possible. This is easily done, and will be found effective as a cure of the trouble above referred to.

R. H. L.

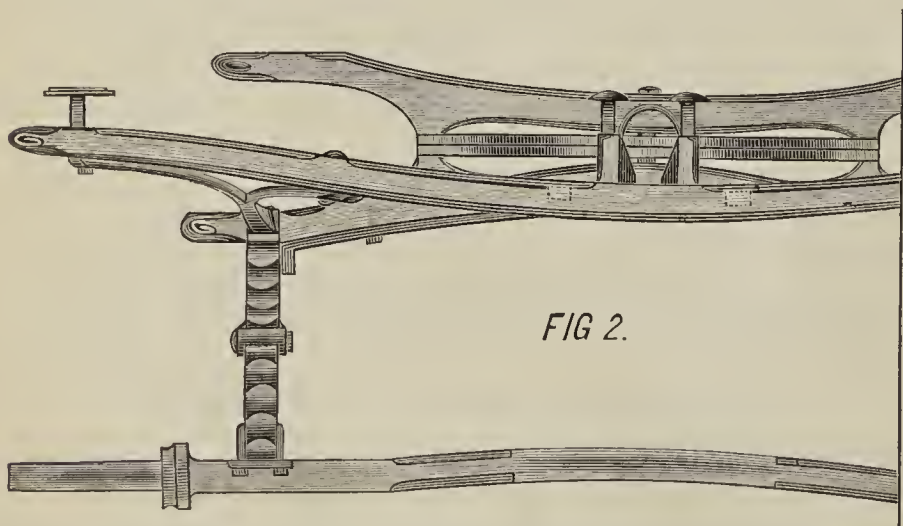
GEARING SUITABLE FOR COACHES OR LANDAUS.

(See illustration accompanying.)

We are indebted to Mr. Lee J. Aubry, foreman in the smith-shop of Messrs. Henry Hale & Co., New-Haven, Conn., for the sketches and principal measurements of this carriage-part. The style is such as is usually applied to coaches and landaus, and although it presents no strikingly new features, the different parts show good taste and judgment in their proportions.



Years ago, gearings for the lighter grades of work were made with a double king-bolt, to accomplish shorter turning; but this method was short lived, being found impracticable for several reasons. It is acknowledged that a gearing having the king-bolt on a direct line with the axle will cause least friction, and it has also been found inadvisable to place the king-bolt more than 3 in. in front of the axle. In numerous cases the placing of the king-bolt in front of the axle has to be resorted to in order to obtain the necessary space for the wheel, while turning under the body, to clear the panel of the wheel-house.

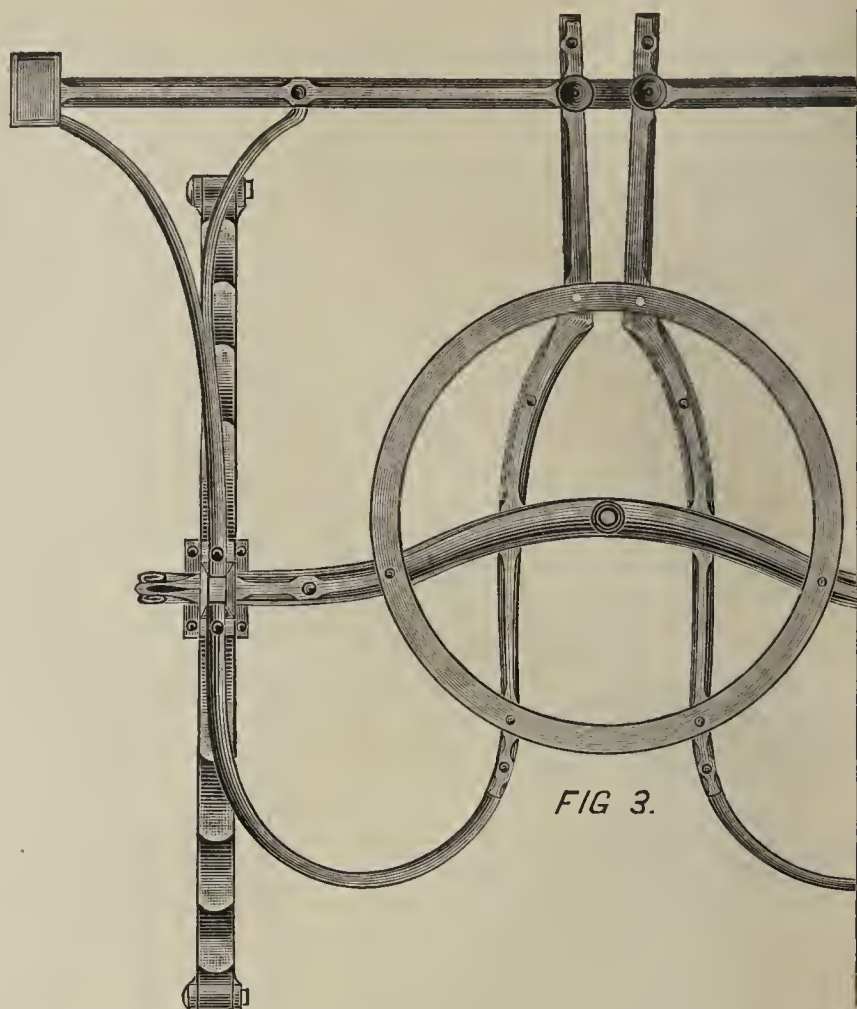


We present, as usual, four views of this gearing, namely: Fig. 1, showing the side elevation; Fig. 2, the front view; Fig. 3, the top view of the lower section; and Fig. 4, the top view of the upper section.

The most noteworthy features of the side elevation are the length and opening of the spring, and the shape of futchel, puncheon and front stay. The opening of the spring is not as great as we have seen on some

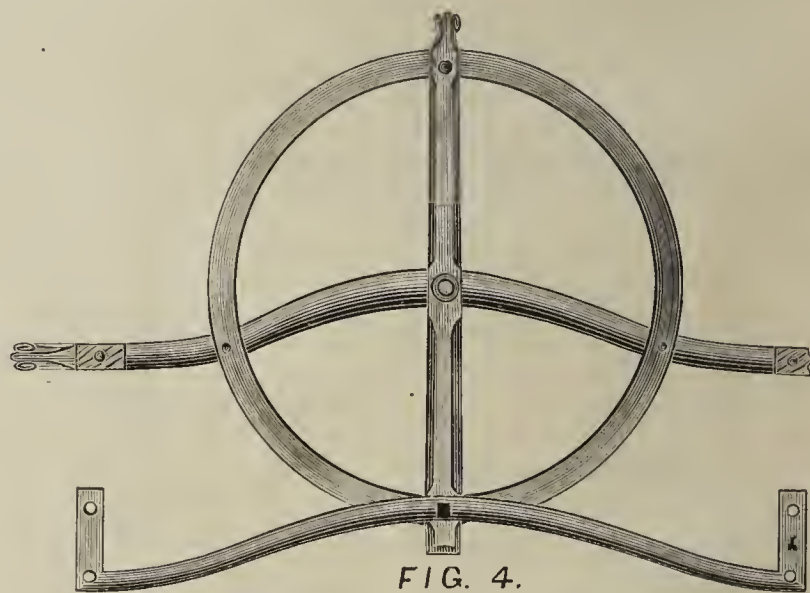
carriages, but it is well proportioned to the length. The top and bottom beds are swept forward $3\frac{1}{2}$ in. An iron bar is used for the back.

Fig. 2, the front view, shows the height of the top and bottom beds, and the manner of lightening the same. It also shows the sweep of the splinter-bar, which is fastened under the futchels, and swept sufficiently to bring the top face on a line with the top of the futchels.



On Fig. 3, showing the top view of the bottom section, the most prominent features are the spring stays, and the shape of the futchels and bottom bed.

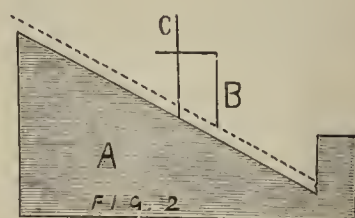
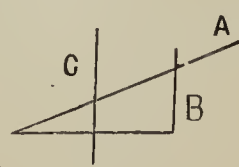
Fig. 4, the top view of the top section of the gearing, illustrates the thickness and shape of the top bed, the puncheon, and the sweep and width of the iron bar.



All the different parts of this gearing are drawn to the scale of 1 in. to the foot, as correctly as possible, and we trust that, with the aid of this drawing, its construction will prove comparatively easy to any who are inclined to use the design, even those not accustomed to build such work.

HOW TO BORE HOLES IN BEVELED IRON.

The following hints apply to cases where it is necessary to bore holes in iron which is beveled, or to fit it on beveled places, such as on brackets, etc., and where it is requisite to have the holes vertical when the plate is applied.



In Fig. 1, A shows the plate; B a block attached; and C the line of the hole. Cut a block as per A, Fig. 2, to the right bevel. Then place the plate in, as per dotted line B, and bore a hole as per C, which represents the drill-bit.

If you imagine there is any mistake about this, just try it once.



HOW TO POLISH WORK WITHOUT VARNISH.

EDITOR OF THE HUB—DEAR SIR: I am a reader of *The Hub*, and find a great deal of information in it; but I notice you answer all questions, and what I desire to know is this: How and with what can I make a nice polish without varnish. If you know of a recipe that will answer, please let me know where I can get it and what it will cost.

BERMUDIAN, PA.

ELI L. GRIEST.

ANSWER.—Yes, you can polish without varnish. For what purpose do you specially require it? If you refer to carriage work, we would advise you not to try it. If for furniture or interior house decoration, use shellac dissolved in alcohol. Apply a sufficient number of coats to level the surface, let dry thoroughly, and then rub down with fine pumice powder and polish with rotten stone and oil, and finally with a little flour and oil.

There are many prepared polishes of French make to be found in the market, many of which are good, but the above is all sufficient.

ONE MODE OF DOCTORING CRACKS.

EDITOR OF THE HUB—DEAR SIR: Having received so many benefits from *The Hub*, I desire to tell you of a little experiment of mine, thinking possibly you may find it of some interest.

Some months ago I read an article in *The Hub* relative to filling screw-heads with chalk and glue, and having a piano-box to repaint, which was cracked clear through and extending all around, I determined to try and fill it with chalk and glue, and was so successful that I determined to write you.

My mode of procedure was this: I first prepared my chalk and glue of the consistency of varnish and poured it into the crack, taking care to fill it solid. I then let it stand two days, then cleaned thoroughly, and gave a heavy coat of roughstuff (on the cracks only). I rubbed, puttied level, and rubbed again; and when the job was run out, the owner could not tell me where the crack was.

This crack was directly opposite the sill, or I should have had to place a strip of silk on the inside to prevent the glue from running through.

There are other, and, no doubt, better methods of effecting the same purpose, but this is the quickest and cheapest I have ever tried.

This may be stale news to you, but all the same I will make the effort to contribute my mite, and if it should prove of any benefit I shall feel fully repaid.

C. F. PETERS,

Carriage Painter, Montrose, Pa.

PRESENT STYLES OF PAINTING LIGHT WORK.

EDITOR OF THE HUB—DEAR SIR: Please publish an account of the prevailing styles and colors for painting and striping light work, such as Piano-boxes, Phaetons, Whitechaps, etc.

JOS. H. SHALLENBERGER.

HAMBURGH, BERKS CO., PA.

ANSWER.—The prevailing colors for light work, as shown by the spring exhibitions of our leading builders, are greens, carmines and lakes, their relative prominence being in the order named.

The greens are of the yellow-lake and Dutch-pink order, medium in shade, running from medium to light, and are very rich in appearance.

The striping on this ground is generally two fine lines of vermilion, glazed with carmine. We also find this ground striped with double lines of Naples yellow, and other hues of this order up to orange. Gold striping is not much used at present. Where the green is of the light shade, it is often striped with black.

The light carmine which has so long been fashionable for the gears of road-wagons, seems to be losing ground, and to be superseded by more subdued colors, such as greens and lakes. Where still used, it is usually striped with black, as formerly.

The lakes now used are of great variety, ranging from the light shade of Munich to the carmine, and down to the deep purple. Purple lake seems especially popular, and always will be where it is properly made, owing to its peculiar richness. A good receipt for producing this comparatively new shade will be found in the last *Hub*, page 789. The deep lakes are usually striped with vermilion, and the light shades with black, from which there is very little variation.

As to the manner of arrangement, double fine lines are almost invariably used on all light work, the two lines being about one-thirty-second of an inch wide, and from one-quarter to one-half inch apart, varying of course according to the size of the spoke. This same style of double fine lines is carried through the entire gear, including bars, beds and springs, the same width of lines and spaces between being observed throughout.

L.

DIRECTIONS HOW TO VARNISH A CARRIAGE OR SLEIGH.

EDITOR OF THE HUB—DEAR SIR: I hope you will pardon the liberty I take in addressing you. I fully understand carriage painting, and can make a good job with this exception, that, in spite of all the pains I take in putting on the last coat of varnish, when it is dry it will look wavy, instead of looking like a piece of polished furniture. To any one not versed in painting it might look well, but anyone with a practical eye can see the defects.

The information I desire is this: Is there anything, such as chloroform or litharge or spirits of turpentine, which ought to be put into the last coat, or is it polished when dry? If the latter, can you give me any information on polishing?

I hope you will oblige me by answering the above at once. I do not ask you for the information free. I am quite willing to pay for it. I have tried quite a number of years to find out this part of the work, and it would prove quite a boon to me, as it would enable me to cope with other shops in the looks of my cutters and buggies. Please let me have all the information possible, or, if you can, tell me where I can purchase a work entirely devoted to varnishing.

I use Nobles and Hoare varnish. I have tried nearly all kinds, and I think this is about the best.

By answering this you will confer a great favor on a carriage painter and woodworker.

F. WHITCHELO.

SHERWOOD P. O., ONT.

ANSWER.—The question how to varnish a carriage or sleigh is a broad one, and we are hardly likely to touch on all the points in one brief article; but we will endeavor to call attention to some of the more prominent conditions to be observed. Varnishing is an art that requires long practice in order to become expert, but the following hints, derived from the experience of others, ought to prove helpful.

In the first place, the surface of the last color coat should be as level as possible. Then apply the first rubbing coat; and after three days, at least, when this has become thoroughly dry, rub it quite level with No. 0 ground pumice and water, carefully rubbing, and as carefully washing off the pumice, so that no particles will remain in the corners of the moldings. A water tool will be found useful for the latter purpose.

Then apply a second rubbing coat, dealing with it in precisely the same manner.

We are thus brought to the last or finishing coat of varnish, at which point your trouble seems to have begun.

Referring now to the grade of finishing varnish you mention, it is of acknowledged excellence, but is considered one of the most delicate to manipulate, and therefore particularly difficult for a novice to handle. The point is just here. The varnish referred to requires a longer time to set than any other. When you have left it looking apparently all right, it will continue to flow; and where more is applied than is actually needed, this is likely to lead to a sagging or wavy appearance such as you describe. Your trouble seems to be, that you apply too heavy a coat. Try a lighter coat, and give it plenty of time to flow out. You can work this varnish with safety much longer than you can any other. Or, if you prefer, try some other make of finishing varnish which is considered easier to handle and safer in its results. Valentine's "Wearing Body," for instance, with which the writer is familiar, permits a heavy coat to be used with perfect security against runs, and while it requires less brushing, it stays where put.

Your questions suggesting the addition of chloroform, litharge or spirits of turpentine to a finishing varnish, fills us with holy horror; and we hasten to state, in the most emphatic manner and with the boldest type which seems practicable, that *nothing whatever should be added to finishing varnish!* If the varnish as supplied by the maker is imperfect, by all means send it back to him, but do not waste time by trying to re-make it or doctor it up, for you are sure to fail, sure to hurt yourself, and sure not to get any sympathy.

In the case of rubbing varnish, let us add, when it has remained long in the can and become heavy or fatty, the addition of a little spirits of turpentine, to cut it, may sometimes be given with safety, though we do not recommend this.

The following hints in regard to the selection and use of varnish brushes may be found helpful. For bodies, use a flat and chisel-pointed bristle or badger-hair brush to finish with, two inches in width; and, in connection with this, use a one-inch flat bristle, fitch or badger-hair tool to wipe in around the moldings and edges.

For the gearings, two flat or oval brushes, one and two inches in width, will be found all that are necessary. The larger one may be bristle, and the smaller one badger, bristle or fitch.

All such finishing brushes should be immaculately clean, and should,

between times, be kept in the same varnish they are to be used with.

The following suggestions in regard to the manipulation of a finishing coat represent the practice of the most skilled varnishers in this vicinity.

Let us take one of your cutters, for example. Having carefully scraped your two panel brushes out of the keeper, and worked them in a little of the material with which you are to finish with, draw into a clean cup sufficient varnish for the job in hand. With the inch tool first go around the edges of the panel with a full coat. Then, with your two-inch brush apply a moderately heavy coat, beginning at the left hand and laying it on, up and down. When the panel is all covered, then give it a dressing, or second brushing, left to right, which will have the effect of leveling it. Then scrape your brush a little, and dress it up and down; then cross it once more from left to right; and a final touching of it from the bottom upward will complete the operation. If any bubbles appear, as they sometimes will when the room is a little too warm, which has the effect of making varnish work frothy, this last dressing from the bottom upward should remove these.

As to the temperature of the room during varnishing, this should be maintained at 75 or 80 degrees Fahrenheit, both during the process and until the varnish has set out of the way of dust. L.

IMPROVEMENTS IN FULL-BLOCK CONDENSED LETTERING.

THE accompanying sketches, Figs. 1 and 2, show improvements in outlining full-block condensed lettering, which I think will commend itself to those engaged in ornamenting business wagons and street-cars.

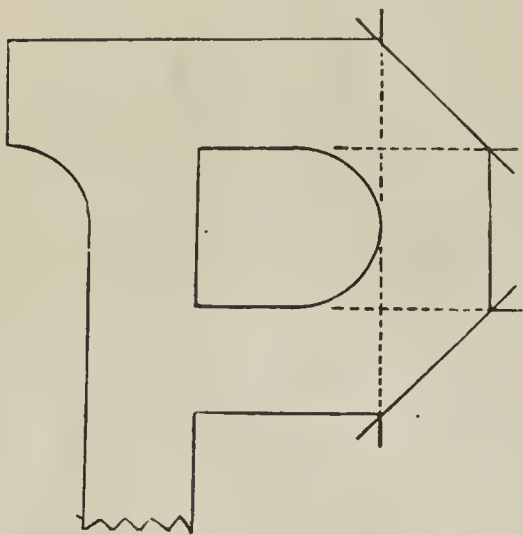


FIG. 1.

These sketches are reduced from original drawings 5 inches in height, and 3 in. wide, with the perpendicular lines $\frac{3}{4}$ in. wide and the horizontal lines $\frac{7}{8}$ in. wide. The appearance of the letters will be found to be greatly improved by making the difference above named in the thickness of the perpendicular and horizontal lines.

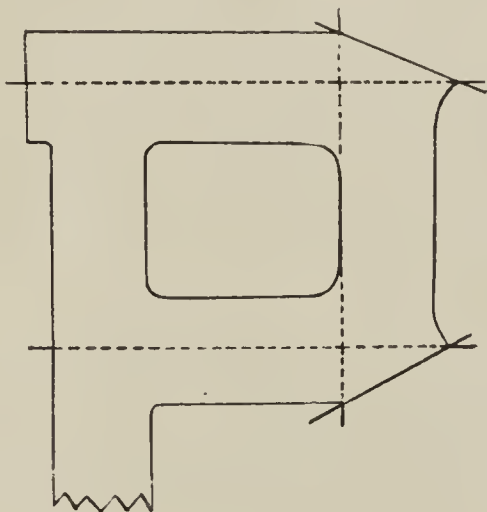


FIG. 2.

I also suggest an improvement in regard to the inside curves. Fig. 1 shows the old style, and Fig. 2 the new; and by comparing the two it will readily be admitted, I think, that the outline shown in Fig. 2 is much more graceful and attractive than the other. G. BECKLEY.

IS IT ADVISABLE TO VARNISH AN OIL PAINTING?

NEW-YORK, March 7, 1884.

EDITOR OF THE HUB—DEAR SIR: Can you give me any advice as to the kind of varnish which is safest to use on an oil picture which has dried in, and how to apply it? Is ordinary dammar varnish the best? And can raw linseed oil be added to it with safety, when it is too thick? I have been troubled with varnish cracking on my pictures.

A reply to the above will oblige.

Yours truly,

C.

ANSWER.—We consider it highly dangerous to cover any oil painting with any varnish, dammar or other, as the coating of paint is certain to be more or less irregular in thickness, and variable in the elasticity or non-elasticity of the pigments composing it, so that it never dries uniformly. The safest protection and finish for a picture that has dried in, is a coat of "Artists' Drying Oil," which is treated with oxide of manganese as a dryer. This can be obtained from any dealer in artists' supplies. It is also worthy of note that the application of any such finishing coat should be delayed until the picture has dried thoroughly.



MATERIALS AND METHODS APPLICABLE TO CARRIAGE CUSHIONS.

IN TWO PARTS: PART I.

A STUFFED seat or cushion is one of the first requisites of any vehicle, whether for business or pleasure. In most kinds of business wagons an ordinary cushion is deemed sufficient, but in pleasure carriages, where comfort is a leading consideration, a more elastic seat is required, accompanied by stuffed back supports, stuffed sides and arm-rests, to counteract the jarring and jolting motion to which the vehicle is subjected. As a rule, however, the quality of elasticity in carriage cushions is not given the attention it deserves, more thought being devoted to their attractive appearance.

It is noteworthy that the materials and methods employed in the make-up of the inside cushions for this class of heavy work have undergone scarcely any change since our first introduction to the mysteries of the craft. At that time, if the trimming material were either cloth or leather, the cushions for coaches, calashes, etc., were generally classified under what were called "common cushions," and their make-up consisted of a stiffened broad-lace front, with about 1 inch of fullness given to the bottom material of the cushions, while $1\frac{1}{2}$ inch was given all around to the material forming the top, this fullness being gathered in with the sewing, and they were generally stuffed with a cheap grade of hair.

French, or squab-top cushions, were then also in vogue, but were not divided, and were only introduced into carriages trimmed with silk materials.

Later on, attempts were introduced to make these common cushions more attractive, the same as the French cushions; and, to facilitate this, to make up the tops separately upon a frame. The method employed, in this case, was to cut a piece of buckram the exact size and shape of the cushion required, to lay off the design of the tufting upon this, and then punch out a large circular hole at each tuft mark. Having previously laid off the top material according to this design, these were then basted together, laying the plaits regularly, and sewing both at once to the facings. This made a horizontal division in the cushion, and the two sections were both stuffed at the same time. To obtain the desired regularity in the tufting, the needle was guided from each mark through its corresponding hole punched in the buckram. This cushion, however, owing to the stiff buckram division, was found to be very hard and inelastic; and, on this account, it was finally rejected for the classes of heavy work, but was still somewhat in vogue for the cheaper grades.

To remedy this defect of inelasticity, the buckram division of these common cushions was afterward omitted, and one of muslin or burlaps substituted. The plaits, in this case, were sewed in regularly to the facings, and the division basted in afterward and previous to turning the cushion. This proved to be an improvement, as it produced a softer and more elastic cushion, but it required considerable practice to produce the desired regularity. This method is still much in vogue for fine light work, and possesses the advantage that, if made by a practiced hand, a much thinner and fully as regular a cushion can be produced as one with the top made up separately on a frame; and a thick cushion, especially one that presents considerable thickness of squabbing above the height of the facings, certainly does not present a very neat appearance, particularly in the classes of light work, where it is exposed to view.

French or squab-top cushions were finally demanded in all closed carriages, regardless of the trimming materials. Of late, however, there has been a marked tendency toward the plainer styles. The principal objection to the squab tops was, that they presented an unnecessary thickness of squabbing above the height of the facings; and soft stuffing

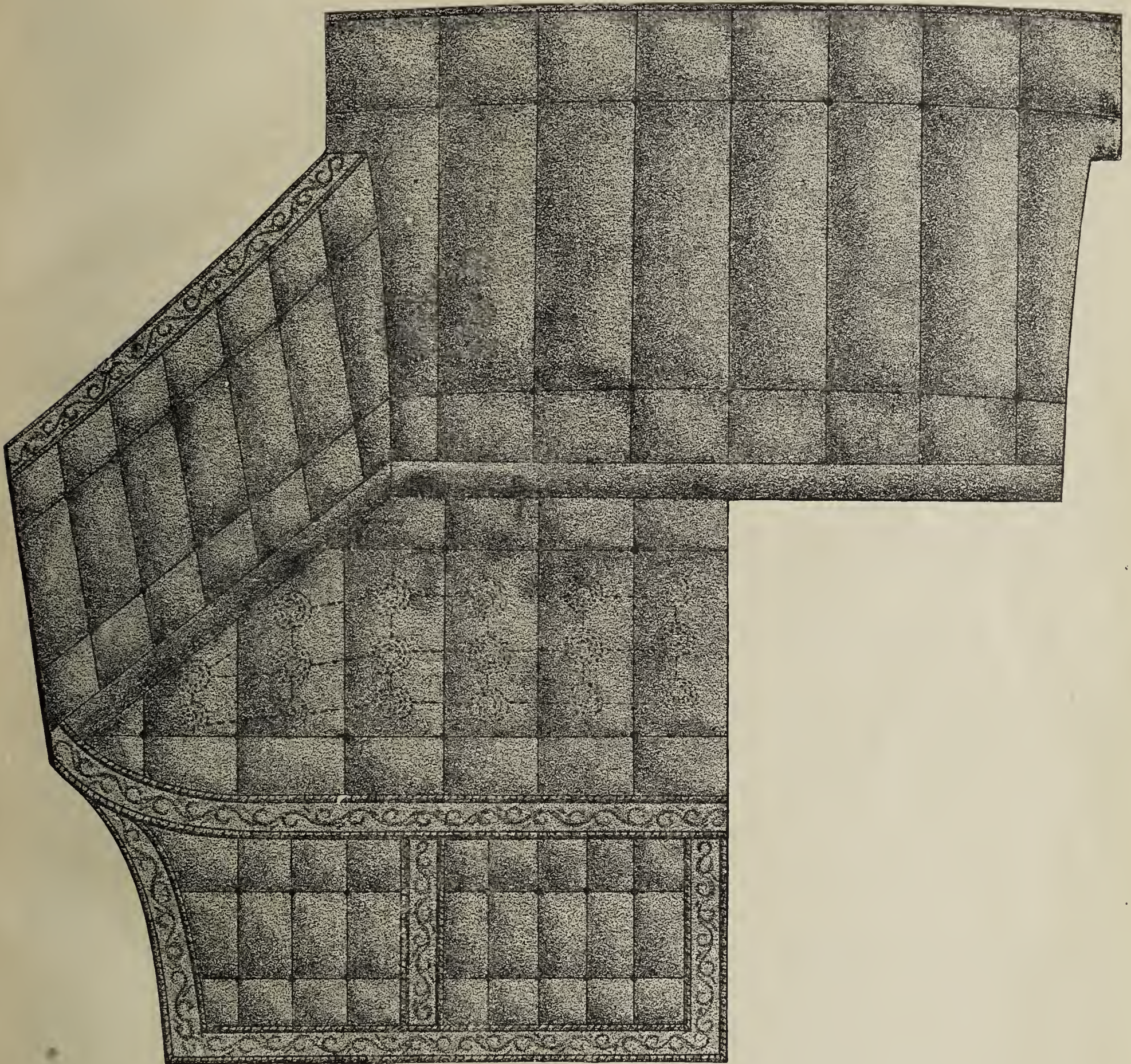
being demanded, the under part often being filled with inferior grades, this would soon settle and present a shabby appearance, in marked contrast with the rest of the upholstery.

Now, I believe, Mr. Editor, that good elastic cushioned seats add as much as any one feature can to the salable qualities of the carriage, and that where a specialty is made of fine work, too much attention cannot be given to the stuffing material, the method employed to produce the best and most advantageous results, and lastly to the foundation or substance upon which the cushions rest. I beg, therefore, to call attention to the following conditions, which should be observed.

The first point which demands attention is the quality of the stuffing material. A wiry, well-curved hair should be used, of which the first

Another fact that is seldom duly considered is, that the very best hair can be robbed of much of its elastic power in the picking, and sometimes in its storage. To preserve the best qualities of hair in the picking, it should be opened lengthwise of the rope, and not be torn off, as is invariably done by unskilled hands. By being opened lengthwise it retains more of the necessary spiral curl, and consequently retains more of its buoyancy and elastic power. Picking a large quantity, cramming it into sacks, and storing in damp places, should also be avoided.

As to hog hair, its use in cushions, or in any part of the inside upholstery of a closed carriage, is simply abominable, owing to its disagreeable odor; and we also believe it to be particularly liable to harbor and breed vermin.—(*To be continued.*)



drawings are unquestionably the best. Judging from our experience, cushions are too often stuffed with cheap grades of mixed hair, and, for further economy, the entire under part is often filled with moss or hog-hair, while the best curled hair is unnecessarily crammed into the other parts of the upholstery, regardless of expense. We candidly believe this to be a mistake and false economy, for if there is any part of carriage upholstery that demands the best of stuffing material, it is unquestionably the cushions. The inferior grades, where economy is an object, might properly be applied to the side and back quarters, or to any other portion that is upholstered merely for effect, and where elasticity is not required, and where the attractiveness of the upholstery, if the covering material be previously lined with sheet cotton or batting, would not be in the least affected. This, however, does not apply to the cushions, where, even if economy is desirable, a less quantity of the best than of the inferior grades would be required to obtain the same amount of buoyancy.

DESIGN FOR TRIMMING PHYSICIANS' PHAETONS AND CABRIOLETS.

(See illustration on this page.)

THE accompanying sketch shows a design well adapted for the back, the quarter part, the cushion and fall of Physicians' Phaetons, and also for Cabriolets. There is no class of men who so much stand in need of comfort as physicians, who are constantly on the go, and need all the rest possible between their calls. This class of trade we particularly cater to in the factory where the writer is employed; and, as a paster and tack driver, I have had some experience in regard to making them comfortable while they are dealing out the balm of life. This design is especially adapted to the class of carriages referred to, for several reasons, as will appear in the description which follows.

The back is made with one row of blocks at the top and bottom, and one long pipe roll between, about 6 in. wide. The back is made up on one ply of buckram and muslin, with 21 springs behind it to make it comfortable. After the springs are in, I sew a piece of muslin on top of the covering of the springs, and lay two layers of good hair. I draw the muslin up tightly. This forms a soft pad for the back to rest upon, takes off the pressure of the springs, and makes the back more like a pillow. I have tried many ways for making a comfortable back, and have never had any one complain of this one.

The quarters can be put in in the same manner as the back, and make a comfortable support, quite as pliable as the back. We make the same kind of a back for vehicles intended for the use of invalids, and they never complain of the result.

We now come to the cushion, which is the most important part about a carriage, so far as the trimming is concerned. Most trimmers spoil spring cushions by drawing the tufts too hard. I presume this is done to make the plait come to its place; but the evil of this will be that your springs are drawn down so tightly that you have no spring at all. I have been there myself, and know all about what I am saying.

My plan for making a spring cushion is this. I take two-ply of buckram for the foundation. I cut this $\frac{3}{4}$ in. smaller all around than the cushion bottom. I then bridle the springs, by using a box $3\frac{1}{2}$ in. wide and 12 in. long. By using the box you can have all your springs the same height. I usually introduce 21 springs if the cushion will allow it; but if not, I then use a less number.

If you want a nice riding spring cushion, you must not tuft or allow any tuft to pass through the spring, for, if you do, you will destroy the use of the spring. In the design given, the cushion shows the springs all under the long pipe rolls, and not encumbered by any string or tufting cord. This plan shows each spring where it will be of the most use, mainly in the center of the cushion. The springs are bridled together to keep them from getting out of plumb.

After the springs are fastened to the buckram foundation at the side next to the seat-board, I take a layer of wadding, one inch smaller than the buckram foundation, and lay it on and cover it with muslin, pasting it firmly around the edges. I then let it dry, and when I get my springs in the cushion, and all finished, I find that the wadding takes the pressure from the buckram next to the seat-board.

Remember to keep your springs away from tufting cords!

We are using goatskins and broad and seaming-lace as trimming materials for work of this kind, on both Physicians' Phaetons and Cabriolets.

W. H. E.

WANTED: DESIGNS FOR SHIFTING-RAILS AND SEAT-BACKS.

BRIDGEPORT, CT.

EDITOR OF THE HUB—DEAR SIR: As a subscriber, I would like to suggest that you give a good article on shifting-rails—not telling how to make a rail, but illustrating and describing the different kinds adapted for different uses. I have thus far seen nothing good published on this subject, and I am sure it would be appreciated by the light work section of your readers.

A good article on seat backs for light work giving different designs, would also take well. Any one who has been called upon to design such a pattern off-hand, knows how difficult it is to make a good looking one with nothing to go by. As for myself, I had rather draft a Rockaway.

GEO. W. KERR.

NOTE.—Our correspondent will please accept thanks for the above suggestions, which have been duly noted in our already long list of requirements which we propose to try and fill during the present year. We desire that our new volume should put every previous volume into the shade, particularly in respect to the character of the mechanical departments, and our Mr. Kehrl requests the assistance of all his practical friends in not only pointing out the live questions of the day, but in sending him the necessary drawings and descriptions with which to answer such questions.

Cannot Mr. Kerr start the ball by contributing some samples of shifting-rails and designs for seat-backs which he has already found useful? That will be a good way to arouse some one else to contribute others.

To D. L., of London: Yes, we have always been well satisfied with the name of our periodical, which is short, easily pronounced, characteristic of the trade we represent, and also peculiarly applicable to our case, for the reason that our paper was first issued in Boston, Mass., which city has long been nicknamed "the hub of the universe." But you must not think the word *hub* an Americanism because you happen to use the term *nave* so commonly in London. Authorities on such matters in your own country claim it to be Oxfordshire English,



TRADE GOSSIP OF THE PAST MONTH.

The correspondence accompanying the renewal of subscriptions during the past month, has given us an exceptionally good opportunity to form a correct estimate as to the condition of the American carriage trade at the present time. After a careful comparison of many hundreds of such reports, we cannot but think that the showing of last year's business is much more satisfactory than was anticipated. Judging by these reports, received from all classes of builders, located in all sections of the country, we are led to believe that, in spite of decreased production of new work (which seems undeniable), prices were very generally sustained; an unusual amount of business in repair work was done, and at remunerative prices; and that builders of substantial vehicles at moderate prices enjoyed their usual custom. The wholesale manufacturers of cheap work seem to have been the chief sufferers, and the trade's aristocracy of builders of the highest grade of work evidently had some cause for disappointment; but the great middle class, catering to local custom,—who, after all, represent the bone and sinew of the trade, and whose prosperity or lack of it forms the most reliable thermometer as to the summery or wintry condition of business,—express themselves as well satisfied with the results of the past year, and prospects of the present year. We are glad of this! It gives us further confidence as to the stability of small builders in spite of the competition of the great.

* * *

We have been glad to notice, during the past month, indications of increased interest in the approaching World's Industrial and Cotton Centennial Exposition, to be opened at New Orleans, La., on the first Monday of December next, and to close about June 1st, 1885. The plan of holding an exhibition of this character was first made public by a resolution adopted by the National Cotton Planters' Association at its Convention in October, 1882, the intention then being to merely celebrate the centennial anniversary of the first exportation of cotton from America; but the enterprise has since materially widened in scope, and received such proffers of State and Government aid, that it promises to form a worthy mate, in the series of World Industrial Exhibitions, to that held in Philadelphia in 1876. Preliminary circulars show that provisions will be made, in classes 616 and 617, for the carriage, harness, saddlery and accessory trades to be fully represented; and blank forms of application for space can be obtained by applying to Director-General E. A. Burke, at New-Orleans. We hope many Northern carriage-builders may avail themselves of this opportunity to make the personal acquaintance of their Southern customers.

* * *

The Brewster-Hatch lawsuit, which we commented upon in our last number (page 792), has continued to attract much attention from the carriage trade, who seem unanimously to look upon Judge Hawes's decision as untenable. "Why," says a leading builder of a neighboring city, "if that is good law, and the giving of a Christmas present to a customer's coachman deprives us of our right to collect a just bill, then we shall be forced to demand cash in advance from the 'screws'; for the custom of the trade compels us to give more or less such fees, and we all number more or less such 'screws' among our customers." There have been no further developments during the past month. We present in this number (page 35) a communication from a New-York lawyer which clearly sets forth the present position of the case, and the bearing of the legal points involved.

* * *

Mark R. Lazier, the alleged traveling swindler, still remains in jail at Simcoe, Ontario; and his trial will take place on April 7th. The varnish trade of this city and vicinity have shown only proper interest in the welfare of their customers, who have been shame-

fully swindled by fraudulent representatives for years past, by combining together and electing a committee to see that justice is done in this case. On March 4th a meeting of the varnish trade was held at the office of *The Hub*, to consider the propriety of some joint action in view of the probability that Lazier was the confidence man whom they had so long been looking for. Representatives of the following well-known houses were present: John W. Masury & Son, Parrott Varnish Co., Edward Smith & Co., Valentine & Co., and Adolphus Keppelmann; and letters were received from many others, expressing interest in the movement, and willingness to coöperate in it. An ample fund was raised to cover expenses, and Mr. C. O. Wolcott, *Chairman*, and Geo. W. W. Houghton, *Secretary*, were appointed as a committee to take such steps as they might deem necessary for the protection of the trade against Lazier, in case he should be identified as the swindler in question. Counsel was immediately secured and dispatched to Belleville, to investigate the situation; and the same counsel will also be present at his trial during the present month. We hope, in our next number, to be able to give full particulars as to the result of the Committee's action.

OF THE CASE OF BREWSTER VS. HATCH, AND QUESTIONS RAISED THEREBY.

By AUSTIN HUNTINGTON.

THE inquiries with regard to this case, received, as the editor of *The Hub* informs the writer, from all parts of the country, imply that the custom of giving gratuities to coachmen is almost universal among the city carriage-makers of the United States. It has, therefore, been assumed that an article explaining the law on the subject will prove of interest to the trade.

We will, first of all, examine the case of Brewster against Hatch. This action was brought by Brewster & Co., of Broome-st., New-York, to recover a balance due for goods sold, and work and materials furnished. It came to trial in the Marine Court on the 23d day of April, 1878, and the jury found a verdict for the plaintiff. At this trial, it first appeared that a gratuity had been given to Mr. Hatch's coachman, but it was not then pleaded as a defence to the action.

On the appeal from this judgment in the same Court, on February 8th, 1879, Mr. Hatch's counsel tried to raise the question of the gratuity, but the Court affirmed the judgment on the ground that the question had not been raised by the pleadings. The Court took occasion, however, to state that, in its opinion, the custom was contrary to good morals, and that, if the giving of the gratuity had been pleaded and proved, it would have been a good defence to the action. This opinion is what is known in law as a "dictum;" that is, one in which the Court intimates what its decision would have been if certain facts had been presented to it, which were not before it. It has no value as a decision, and but little as an authority.

On the appeal from this judgment to the Court of Common Pleas, the judgment was reversed, upon the ground that certain evidence had been improperly admitted; and a new trial was ordered. The question of the gratuity was not raised.

Previous to the new trial, Mr. Hatch, acting upon the hint above given him, pleaded the giving of the gratuity as a bar to Brewster & Co.'s recovery.

On the new trial, on February 12th, 1884, Mr. Justice Hawes directed a verdict for Mr. Hatch, on the ground that giving a gratuity to the latter's coachman was contrary to good morals and public policy, rendered the contract void, and barred recovery of the claim.

A motion for a new trial was heard on February 23d, 1884, but a decision has not yet been rendered.

The writer has endeavored, in the above, to clearly and fairly state the case, so far as it has progressed. With no wish in any way to forestall the decision in this particular instance, he will now state the general conclusions as to the law on the question of giving gratuities which he has arrived at, after consulting the highest authorities within reach. It happens that no decision bearing upon this point has ever been rendered in our Courts, and we are therefore compelled to resort to those of our mother country, England, for authorities. We there find a case, decided as late as January 30th, 1875, before the Court of Queen's Bench, a Court of high authority. This is the case of Smith against Sorby, which closely resembles the case of Brewster against Hatch, except that in the former case there was evidence that the gratuity had induced the servant to act contrary to his master's interests.

In this case, Lord Chief Justice Cockburn said: "If a party with whom an agent is negotiating on the part of another, agrees to give, or does give the agent a secret gratuity, and that gratuity does influence the mind of the agent directly or indirectly in assenting to anything prejudicial to his employer in the making the contract, the contract is vitiated." Justice

Blackburn said: "I am not prepared to say that there is an absolute presumption, *presumptio juris et de jure*, that the giving of such gratuity amounts to fraud. I think it is a question for the jury; and if they think that the gratuity was given without the knowledge of the principal, and with the intention of influencing or biasing the mind of the agent in favor of the person giving it, and that it did produce the effect of biasing the mind of the agent in favor of such person, and acted as an inducement to him in entering into a contract or carrying one out, then I think that the jury ought to find that there is what amounts to fraud."

The two preceding opinions state the law in a nut-shell. Two elements must be joined to constitute fraud: First, the cause, the giving of the gratuity with the intent to influence the mind of the servant to act contrary to the interests of his master; and, secondly, the result, the action of the servant contrary to his master's interest, in consequence of such gratuity.

To conclude, the writer does not wish to maintain that the giving of gratuities in such cases, is a good custom. On the contrary, he highly disapproves of it; but it has become ingrafted in this country, and, perhaps, it will not be easy to put an end to it. He merely wishes to maintain that, if such gratuity is, in fact, given, no contract can be properly set aside or annulled on the ground of fraud, unless the two elements above mentioned concur. He would also add that there is a great difference whether the contract has been carried out or not. In the latter case, the Courts will more readily set it aside; but, in the former case, while they may set it aside from the time of the discovery of the fraud, they will hold that work previously done must be paid for.

CONTRIBUTIONS TO THE HUB'S NEW LIBRARY.

AMONG the books recently contributed to our new library, the following seem worthy of special mention, although some of them have previously been reviewed, and more at length.

"*The Complete Carriage and Wagon Painter*," by Fritz Schriber (F. B. Gardner), recently published by M. T. Richardson, of New-York, proprietor of the *Blacksmith and Wheelwright*, is a cloth-bound volume of 170 pages, containing a great variety of useful hints in connection with the painting of carriages, wagons and sleighs, including directions for striping, ornamenting, lettering, scrolling and varnishing, and receipts for mixing colors. It is profusely illustrated, and has a convenient index.

"*Carriage and Saddlery-Hardware Trades' Directory, 1884*."—Wm. N. Fitz-Gerald, of No. 17 Spruce-st., New-York, has just issued a directory bearing the above title, which contains carefully prepared lists of all wholesale and retail manufacturers of carriages, harness and accessory goods doing business in the United States, together with some of the more prominent houses engaged in the same branches in Canada, England, France, Australia and New-Zealand. We take pleasure in recommending this painstaking work to all who feel the need of such a trade directory. We understand that it is supplied free of charge to all subscribers to *Coach, Harness and Saddlery*, of which Mr. Fitz-Gerald is the Editor.

"*A Scratch Team of Essays*," published by W. H. Allen & Co., 13 Waterloo Place, London, includes four readable magazine articles, by Sept. Berdmore (Nimshovich), reprinted from the *Quarterly Review* and *Westminster Review*. The subject of the last is "Carriages, Roads and Coaches" (pages 178 to 255), and this will be found specially interesting to the carriage-builder, as it contains a careful review of all past and present styles of English vehicles, whether intended for pleasure or business. It also refers, in an appreciative manner, to numerous American inventions relative to carriage construction. The English price of this handsome volume, which well deserves a place in every carriage-builder's library, is three shillings (seventy-five cents).

"*Patents on Inventions, Volume I*," is a cloth-bound book of 214 pages, forming the first installment of a quarterly patent-law review, edited by Henry Connett and Arthur C. Fraser, for the information of inventors, patentees and manufacturers, and published by Burke, Fraser & Connett, 10 Spruce-st., New-York. This first volume contains a great variety of useful facts, not otherwise easily obtainable, and seems especially valuable to us by reason of the full particulars it gives in relation to foreign patent laws, a subject in which many of *The Hub's* correspondents have heretofore expressed interest. Foreign inventors, wishing to secure rights under the laws of the United States, will also find in this book all necessary information.

TABULAR SHOWING
OF
Fire Losses in Carriage, Wagon and Sleigh Shops
IN THE UNITED STATES,
During 1883, the Great Fire Year.

NAMES OF PROPRIETORS.	BUSINESS.	LOCATION.	DATE OF FIRE.	PROBABLE CAUSE OF FIRE.	TOTAL LOSS.	AMOUNT OF INSURANCE	AV' RAGE RATE OF INSUR'CE.
Anderson Carriage Co	Carriages.....	Columbus, O.....	Nov. 16...	Tenant's Handle Works..	\$7,500	\$5,000	2 %
Apple, Peter.....	Wagons	Arcadia, Iowa.....			....	....	....
Atwater Buggy Co.....	Carriages.....	Cleveland, O.....	March 15..		3,500	1,600	....
Bancroft, T.....	Carriage Blacksmith.....	Sheldon, Vt.....	Jan. 10...	Forges.....	2,000	1,100	....
Bingham Carriage Shop.....	Carriages.....	Boonville, N. Y.....	April 17 ..		....	....	....
Born, E. B.....	Carriages and Wagons.....	Allegan, Mich.....	Aug. 28...	Incendiary.....	3,300	601	1
Buck, Levi S.....	Wagon and Blacksmith-shop	Ashley, O.....			....	....	....
Buckland, Geo. G.....	Carriages.....	Tulare, Cal.....	Nov. 1....	Defective Lamp	8,600	5,335	4½
Buckley, E. V.....	Carriages.....	Alma Center, Wis.....			....	....	....
Byer's Carriage Works.....	Carriages.....	Grapeville, Pa.....	Nov. 16...		15,000	....	....
Carpenter, Wm.....	Wheelwright.....	Tulare, Cal.....	Nov. 1....	From Adjoining Building	700	200	4
Clark, Seth, Jr.....	Carriages.....	Amesbury, Mass.....	Sept. 24...	Spontaneous Combustion.	25	....	....
Condell, Mastin & Butler Co...	Carriages.....	Plainville, Conn.....	Oct. 28...	Incendiary.....	12,000	7,500	....
C-Spring Cart Co.....	Carriages.....	Rushville, Ind.....	Nov. 1....	Paint-shop.....	15,000	10,000	2½
Dodd, H. N.....	Carriages.....	Bloomfield, N. J.....	Jan. 9		10,000	....	....
Drake, J. R. & Co.....	Carriages.....	Lebanon, O.....	Nov. 20...	Unknown.....	2,700	1,326	3
Driffle & Scott	Buggies	DeWitt, Iowa.....			3,000	2,000	....
Enterprise Carriage Co	Carriages.....	Cincinnati, O.....	Sept. 19...		20,000	35,000	4
Fairbanks, Corning.....	Sleighs	Westborough, Mass..	March 22 ..	Friction	2,000	....	....
Ferguson, Geo. H.....	Carriages.....	Lawrence, Mass.....	Sept. 2....	Incendiary.....	5,000	None.	....
Ft. Scott Carriage Works.....	Carriages.....	Fort Scott, Kans....	June 30...	Oily Rags, Paint-shop ...	1,632	2,000	3½
Gisler, M. M.....	Carriages.....	Detroit, Mich.....			....	....	....
Godden, G. H.....	Carriages.....	Basil, O.....			....	....	....
Goermes, F.....	Carriages.....	Streator, Ill.	Aug. 25...		....	....	....
Graveline, A.....	Carriages.....	Vergennes, Vt.....			....	....	....
Hambleton, John S.	Carriages and Wagons.....	St. Michael's, Md....	Sept. 28...	Incendiary.....	1,500	600	1¼
Hamilton, Joseph	Carriages.....	Pleasureville, Ky....			3,000	1,200	....
Hartzman, W. L.....	Wheelwright & Blacksmith	West Chester, N. Y..	May 17...		....	....	....
Herr Bros.....	Carriages.....	Westminster, Md....	April 10 ..	From Stable .....	....	....	....
Hicks, —.....	Wagon and Blacksmith-shop	Forest City, Ark....	Jan. 2		2,000	....	....
Jackson & Co.....	Carriage Painters	Visalia, Cal.....		Incendiary.....	1,500	....	....
Johnson, Horace	Carriages.....	Plainville, Conn.....	Oct. 28 ...	From Adjoining Shop....	12,000	5,000	2
Klein, Peter	Carriages.....	Milwaukee, Wis.....		Paint-shop, Spontaneous.	....	....	....
Lansing Wagon Works	Wagons	Lansing, Mich.....	April 22 ..	From Boiler-room.....	30,000	21,000	2¼
Magner, Frank.....	Carriages.....	Wellsville, N. Y.....			....	....	....
Mandt, T. G.....	Wagons and Carriages.....	Stoughton, Wis.....	Jan. 13 ...	Blacksmith-shop.....	95,344	60,119	2½
McDonel, A. T.....	Carriages.....	Fostoria, O.....	April 15 ..	Spontaneous Combustion.	6,000	2,500	....
Murray, E.....	Carriages.....	Niles, Mich.....	Jan. 22 ...	Defective Flue.....	8,000	1,500	....
Needles, J. H.....	Carriages.....	Atlantic, Iowa.....	July 24 ...	Spontaneous Combustion.	1,000	800	2
Newark Valley Wagon Co.....	Wagons	Newark Valley, N. Y.	Dec. 10...	Blacksmith's Forge.....	18,500	10,700	1¾
Nickle, Wm. W.....	Carriages.....	Port Deposit, Md....			500	....	....
Northwestern Mfg. Co.....	Wagons	Ft. Atkinson, Wis... Nov. 8....	Paint-shop, Spontaneous.	2,000	1,960	2	
Novelty Carriage Works	Carriages.....	Fargo, Dakota Ter... May 16...		5,000	500	....
Payne, A. S. & Co.....	Carriages.....	Lynchburgh, Va..... Aug. 13...	From Adjoining Building	957	2,000	2	
Pratt, Daniel.....	Wagon-shop.....	Salisbury, Conn..... Jan. 17. .	From Stove.....	1,000	450	2	
Racine Wagon and Carriage Co.	Carriages and Wagons.....	Racine, Wis.....	Sept. 18...	Oil-room.....	9,000	5,539	2.28
Sanders, Joseph.....	Wagons and Carriages.....	Elizabeth City, N. C.	May 14 ..	Incendiary.....	6,100	2,100	2½ & 4
Schwenck, A. & Son.....	Carriages.....	Norristown, Pa..... Jan. 20...	From Stove.....	7,000	....	....
Seipel Bros.....	Carriages.....	Marietta, O.....	March 31 .	Defective Flue.....	1,000	600	....
Schimansky, Otto.....	Carriages.....	Oak Harbor, O.....	Sept. 23...	Spontaneous Combustion.	10,000	3,750	3
Stough, J. S.....	Carriages and Wagons.....	Brazil, Ind.....	Sept. 24...	From Livery Stable.....	2,000	1,000	3½
Smalley, J. K.....	Wagons and Carriages.....	Nashville, Tenn..... May 17...	From Adjoining Building.	....	....	....
Snider, Albert.....	Carriages.....	Lawrenceburgh, Ind.	Sept. 18...		5,000	2,500	....
Springfield Wagon Factory....	Wagons	Springfield, Mo..... Oct. 29...		50,000	20,000	....
Steitz & Co.....	Wagons	New-York City..... Dec. 7....		5,000	....	....
Terrell, Geo.....		Marengo, O.....		....	....	....
Thompson, Robert	Carriages.....	Wellsburgh, W. Va.. April 27...		2,500	....	....
Tribbey, F. M.....	Carriages.....	New Albany, Ind.... Nov. 1....	From Adjoining Building	1,000	2,500	1¾	

NOTE.—The above “Fire Table” was originally compiled from items which appeared in our “Trade News Department” during the last volume of *The Hub*; and proofs were subsequently forwarded to all the houses named, from whose detailed reports many additional facts were obtained and duly inserted. Further corrections and additions are requested. The lessons suggested by this showing are briefly pointed out in the accompanying editorial. See opposite page.—EDITOR.

FIRES AND INSURANCE.

(See Tabular Showing for 1883, on opposite page.)

DURING the past two months we have devoted considerable time to the work of compiling the accompanying "Tabular Showing of Fire Losses in Carriage, Wagon and Sleigh Shops in the United States during 1883, the Great Fire Year."

We first collected all items relative to the subject which had appeared in the last volume of *The Hub*, to which we appended such additional items as we found in our various exchanges. In this skeleton condition we had a proof list put in type, printed, and mailed to all houses named in the list; and a most interesting correspondence followed, which resulted in affording us many additional facts and figures, and in suggesting the following review of this showing, and of the lessons which seem to be taught by it.

Let us first analyze the completed table as we herewith present it. It contains records of 58 fires which occurred in our American carriage, wagon and sleigh shops during the year 1883. The Western States monopolize 29 of these items, or just half the total number; the Middle States follow with 11; and then come New-England with 8, the Pacific States with 6, and the Southern States with 4. Judging from brief reference to the indexes of the back volumes of *The Hub*, the total number of fires was unusually large, although we have no previous tables of a similar character by which to make a critical comparison. In amounts, moreover, it will be perceived that many of the losses are important, the largest being that of T. G. Mandt, of Stoughton, Wis., \$95,344, and the smallest \$25. Eleven losses amount to \$10,000 or upwards. The loss is not stated in all instances, but looking at the 44 records where it is so stated, we find the total loss in these cases to be \$398,858, and the average loss, \$9,000.

The question now arises, What proportion does this loss bear to the total capital invested in carriage shops located in this country? Unfortunately, there are no late statistics regarding this subject which can be relied upon. Indeed, the only recent statement having any bearing upon it, is that contained in the official circular of February last, addressed by the Carriage Builders' National Association "To Consuls and Consular Agents representing the United States of America in Foreign Countries," wherein appears the following introductory paragraph: "This Association is composed of carriage-builders and the accessory trades from nearly all the States of the Union, an organization representing upwards of 18,000 establishments [evidently under-estimated, as our office list from which we mailed our last *Hub Almanac* contains 19,250 names of carriage, wagon and sleigh factories and repair shops], giving employment to about 90,000 workmen, with a capital of nearly \$50,000,000 [probably under-estimated], and producing goods to the value of upwards of \$100,000,000 yearly [probably under-estimated]."

The above estimates, as will be noticed, include the accessory trades, and we cannot but consider the values mentioned as inadequate; but taking these as a basis, it is safe to admit that the capital represented by the carriage, wagon and sleigh-builders aggregates at least four-fifths of the capital stated, or \$40,000,000; and that at least four-fifths of this amount, or \$32,000,000, is invested in shops, materials, tools, and articles either manufactured or in process of manufacture, which are insurable. Let us further admit that one-half of this amount, or \$16,000,000, is actually insured by carriage and wagon-makers; and let us add about 25 per cent. to the losses named, in order to cover those not stated, setting the total loss during last year at \$500,000. This shows a percentage of loss of $3\frac{1}{8}$ per cent. on the total amount insured. The reader may well express surprise at this painful result.

What, next, do we find to be the rates actually paid by the houses named in our list? They have a wide range, namely, from 1, the lowest, up to $4\frac{1}{2}$, the highest,—the average for the 23 cases named being a trifle over $2\frac{1}{2}$ per cent. We have heretofore been inclined to believe that any carriage-builder who paid over 2 per cent., paid more than the average hazard of the business required; but if we are correct in our statement of the case as presented in the preceding two paragraphs, even 3 per cent. would seem to be inadequate to the disastrous condition of things last year.

And now, last of all, but most important of all, we are led to the question, How can the danger of fire in carriage shops be reduced? This is an ever-live question which merits the most careful consideration on the part of every carriage and wagon-builder. A study of our table shows that the causes of fire mentioned in 34 cases

specified therein, may be divided into the following classes, namely: From spontaneous combustion, paint-shop and oil-room, 9; from adjoining buildings, 8; incendiary, 6; smith-shop, 3; defective flue, 2; stove, 2; lamp, 1; friction, 1; boiler-room, 1; and unknown, 1. We are inclined to believe that the foremost of these items, spontaneous combustion, might be still further increased from the ranks of the incendiary and unknown items if all the facts were known. There is no doubt in our mind that the paint-shop is the chief source of such conflagrations, and "Oily Rag" the fire-bug that we have chiefly to deal with, if we hope to reduce the annual percentage of loss. Look then to your paint-shop! Keep then a sharp and persistent eye on "Oily Rag!" In this way, and in this way only, can we hope to make a more favorable showing when we come to prepare a similar table of the losses during the present year, as we now propose to do in our April number, 1885.

* * *

[P. S.—It may not be improper to add that the object we originally had in view, in compiling the accompanying table, was to offer mathematical proof that our American carriage-makers, as a rule, paid excessive rates of insurance. We feel duly mortified at the contrariness of the facts with which we have had to deal; and we shall feel much obliged to any ingenious reader who can coax more favorable results from the same figures, or prove that the figures themselves are inadequate.—EDITOR.]

CRITICS' CORNER.

[In opening this new department of our magazine, and requesting contributions, the Editor begs to remind correspondents that *criticism* means "the art of judging with propriety of the beauties and imperfections of a production." No mere fault-finder need apply.]

DESTRUCTION OF VEGETATION BY ASH TREES.

NEW-HAVEN, CT., March 12, 1884.

MR. EDITOR: In the March *Hub* Mr. Howard M. DuBois, in his article on "Ash, and its Uses in Carriage Building," says: "The drippings of all ash trees do certainly destroy all vegetable growth upon which they fall." Well, well! That is something new to most people, especially to the verdant ones who live out in the country!

Friend DuBois, come up and make us a visit next July or August, and we will then take a lunch basket and go out into the fields, and have a good time under some of our noble old ash trees, where you may sit or roll on as fine a turf of grass as you ever saw. H. G. SHEPARD.

CORRECTED FIGURES REGARDING THE CARRIAGE TRACK OF AUSTRIA.

IX PORZELLANGASSE 2, VIENNA, AUSTRIA, Feb. 19, 1884.

EDITOR OF THE HUB—DEAR SIR: We congratulate you on the publication of lists of the different carriage tracks of the world in your New Year's number, which will prove most useful to every carriage-builder. We beg to say, however, that the statements in regard to our own country are not quite correct.

Our Austrian standard track, that is, the one adopted by the Postal Department, is 111 c. m., equal to 3 ft. 6 in. (Vienna measurement), and all carriages out of town have to be made to that track. For some Alpine provinces the track is even narrower by 2 in., and you may imagine how well it agrees with the demand for ease and comfort by our customers, when ordering Coupés, Victorias or Landaus for country use.

The tramway tracks we believe to be different in different cities, and we cannot give you exact data about them, but no pleasure carriage in our country is ever built according to them.

Please accept our best compliments, and excuse our correcting your statements. Yours truly, JACOB LOHNER & Co.

A PROPHECY RESPECTING THE FUTURE OF HAN-SOM CABS IN AMERICA.

THE following communication, addressed to us by the acknowledged leaders in this country in the specialty named, deserves notice by all who are interested in any way in the subject of Cab service, which daily assumes greater importance as one of the live questions of the times:

BRIDGEPORT, CONN., March 12, 1884.

EDITOR OF THE HUB—DEAR SIR: In your description of the "Gurney Herdic," in the February *Hub*, you state that that vehicle is vastly superior to the Hansom Cab, because the driver's-seat is in front, and the entrance at the rear.

We are surprised at these favorable comments, when you must know that a seat in front of the axle, on a two-wheeled vehicle, utterly destroys

its balance, thereby causing it to ride hard, and giving it a tendency to produce sores on the back of the horse.

Moreover, the entrance at the back necessitates that the seats be placed at the sides, as in a stage, and they must be narrow ones, with stiff backs. Consequently, when one wheel goes into a hole or depression, the occupants of the opposite seat are pitched forward, and the motion of all the passengers is anything but pleasant.

Now the two objections, above-named are entirely overcome in the Hansom, and the pleasure of riding is further enhanced because the view forward is unobstructed by a driver's-seat.

Permit us to add a few words as to the popularity of the "Herdics." They have been running them for some time in Chicago, and yet a very rich company has been formed there, called the Chicago Hansom Cab Co., and we are sending them all the Hansom Cabs we have finished and coming out. Thus Chicago will soon have London Cabs running, made in America. The treasurer of that Company told us personally that they would not buy or use a "Herdic" at any price. They imported a sample Cab from England; but, upon its arrival, said they had rather have our Cab, notwithstanding there was quite a large difference in price.

We write this in defense of the Hansom, and because we consider that it is destined to become the popular vehicle in this country, as well as in England, for rapid and cheap public service.

With regards, we are, yours very sincerely, HINCKS & JOHNSON.

PROBLEM DEPARTMENT.

[This new department has been opened in compliance with the request of a valued contributor. Correspondence is requested.—EDITOR.]

PROBLEM: SHOULD BOTH AXLES BE THE SAME LENGTH?

TERRE HAUTE, IND., March 10th.

EDITOR OF THE HUB—DEAR SIR: Will you please publish in the next issue of *The Hub*, whether it is right to weld the hind axle the longer, or not; and if so, please give your reasons why it should be longer, as I have just got a fire and would like to know. I am with Robert M. Harrison, a subscriber to *The Hub*. Please publish, and oblige.

MARTIN O'CONNELL.

NOTE.—A reply to this inquiry will appear in the "Smith-shop Department" of our next number.

THE PROBLEM OF ECONOMIZING ROOM.

DAYTON, O., March 14.

EDITOR OF THE HUB—DEAR SIR: The question how to build a shop which shall fully answer the needs of the carriage-maker of modern times, and best economize room, is, or ought to be, an ever open one; and I beg to suggest it as one of the subjects to be considered in your new "Problem Department."

We are certainly behind in this matter; and, just as certainly, are losers on this account. I don't know of any one thing that causes the trade greater loss than this: *poorly arranged shops*; and the loss is all the greater because it is annual,—yes, daily.

How often are we compelled daily, in moving jobs from one department to another, to pass over a distance made necessary only by the poor arrangement of the shop; and how often we are compelled to move a number of jobs to make a passage-way, thus interrupting other workmen, opening doors, and moving a number of jobs, to get at the one we want. How much could be saved annually by proper buildings!

Let us have more thought and more expression of opinion on this subject. Illustrations of plans of model buildings might also prove valuable. If you or any of your readers see or hear of, or can design a shop that will help the trade, please give us the benefit of your knowledge.

A. BEDELL.

NOTE.—We propose to follow up this suggestion by presenting in one of our next numbers, a plan and description of Healey, Williams & Co.'s new carriage factory, now in process of construction in this city. It is a large factory, but the same general principles apply both to the large and small.

REVIVAL OF AN OLD PROBLEM.

ANNVILLE, PA., March 13.

MR. EDITOR: Does not the upper part of a carriage wheel go faster or make more distance than the lower part?

This problem has been submitted to the editor of a certain newspaper, who rendered a decision with which most of our citizens were dissatisfied; and many disputes and quarrels have been had over it, some of which resulted in our young men carrying the signal of misfortune conspicuously, so we concluded to submit it to the editor of the worthy *Hub* for final decision.

CARRIAGE-BUILDER.

ANSWER.—As a sulky moves forward on the road, the tire of each wheel has two distinct motions, namely: a circular one around its center, the axle; and a horizontal and progressive one as regards the ground line. Notice here, that in describing the circular motion, any given point in the tire moves forward during half the revolution, as regards the axle center, and backward during the remaining half-revolution. Now, if the sulky be moving toward the left, these circular and horizontal motions partially counteract each other within the lower semicircle, and the progressive movement of any lower spoke is consequently very slight; while, at the same time, the two motions unite and thus multiply the result within the upper semicircle.

We might give you a mathematical demonstration of the above facts, if we cared to introduce engravings; but it would be of no practical value to you, and the benefits of mental exercise can best be obtained by making the following practical test. Place a three-foot carriage wheel in a vertical position in front of the blackboard. Hold the point of a piece of chalk at the outer tenon of the extreme left-hand spoke, and let some companion hold another piece of chalk at the outer tenon of the extreme right-hand spoke. Now roll the wheel along the floor for the distance of nine feet, all the while keeping both pieces of chalk firmly in position and pressed against the blackboard. By this means, the curves they describe on the blackboard will clearly indicate the direction and space covered by such points; and a comparison of these curves will indicate the difference in the distances traversed, the cause of which difference is stated in our introductory paragraph.

After making this experiment, you will find Muybridge's instantaneous photographs of sulkies in motion possessed of a new point of interest for you, as they show the lower spokes with tolerable clearness, while the upper ones are scarcely suggested.

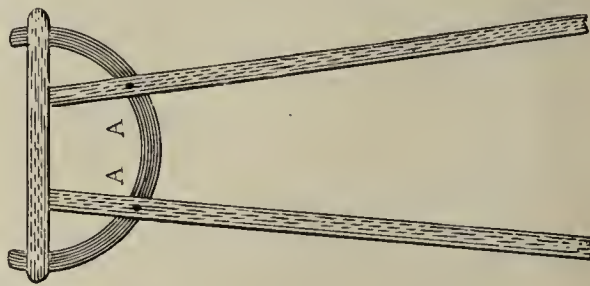
FULL PLATING THE PERCHES OF LIGHT WAGONS.

WILMINGTON, DEL., March 6, 1884.

EDITOR OF THE HUB—DEAR SIR: What is your opinion about plating the perches of light wagons? Does the extra stiffness which is got by plating them the full length, add to the strength, or decrease it?

D.

ANSWER.—Experience has taught that, when the perch is full plated on the bottom, it will break at the bolt-hole connecting the fifth-wheel with the perch, marked A in the accompanying sketch; and in consequence,



apparently, of the plate being thereby made so stiff that there is no chance for the perch to spring when one wheel is raised or lowered by going over an uneven road; while, in the case of a perch made without a plate running the whole length, the perch then has a chance to spring, back of the fifth-wheel, and thus avoid breaking.

THE PROBLEM HOW TO MAKE CARRIAGE PHOTOGRAPHS.

MESSRS. HINCKS & JOHNSON, of Bridgeport, Conn., whose use of photographs in place of hand-drawings was commented upon in our last number (page 794), in the course of our article on "The Demand in England for Improved Carriage Drawings," have kindly communicated the following additional particulars regarding the manner in which they are produced.

BRIDGEPORT, CONN., March 15, 1884.

EDITOR OF THE HUB—DEAR SIR: The last *Hub* has been received, and we notice your remarks about photographs of carriages, and we beg to inclose some samples of our own productions. We have questioned a great many of our customers as to whether they considered our photos faithful representations of the vehicles, and whether they would be most influenced to buy from our photos or from the usual line of engravings used by almost all other carriage-builders. The invariable reply has been in favor of our own photos. We claim our photos to be exact and perfect representations of the jobs, in perfect perspective, and without those distortions which, it must be admitted, are frequently seen in many photos. This latter result is obtained by using lenses made specially for the purpose, by Dallmeyer of London. The cheap lens you mention in your February number (page 723), is worthless for this work.

It requires great judgment to make the carriages appear without reflections of surrounding objects, and have them properly lighted. We sometimes wait days for the proper light. When we require a large number of impressions, we have heliotype prints, a sample of which we inclose. Nothing can be better than the latter. Messrs. Henry Hooker & Co., of New-Haven, have adopted our system, but we have the advantage in being able to make our own negatives.

Yours truly,

HINCKS & JOHNSON.

To H., West Chester, Pa.: We believe C. T. Townsend, New-Haven, Conn., can give you the desired information regarding the Oppenheim Jump-seat.

To M. Smythe & Co., Birmingham, Eng.: We have written to several prominent makers of spoke and wheel machinery, who will send you their illustrated catalogues and price-lists.

RELATIONS BETWEEN AMERICAN CARRIAGE BUILDERS AND THEIR WORKMEN.

BY JOHN W. BRITTON, OF NEW-YORK.

(Continued from page 720 in last number.)

LACK OF APPRENTICES IN THE CARRIAGE TRADE.

While on the subject of public education I would state that, in 1882, I was appointed chairman of a committee chosen by the Carriage Builders' National Association of the United States to consider the apprenticeship question; and among the duties of that committee was the preparation of an address to officials having charge of public education, a copy of which I hand you. A large number of these were issued and circulated among those who ought to be interested in the subject matter; but we received, I think, only six or eight responses. But very few seemed to take any interest in the subject. It would probably have been different if we had issued a prospectus of a new gold mine, or a new railroad to be bonded for four times its value.

The same committee has also issued circulars to members of the carriage trade requesting information as to the laws of the several States, and the customs in different parts of the country, respecting apprentices. To these I think there were perhaps a dozen responses. From one carriage-making center an intelligent manufacturer wrote us, saying, "We have no apprentice system; we have no apprentices; if we want mechanics, we draw them from other places." Yet in that very place they are building up a town devoted largely to carriage-making.

I cite this example to illustrate the prevailing indifference of employers to their future interests; as long as they are making money for the present, they seem to be satisfied.

When our committee comes to make its final report to the Association, however valuable it may be, it is doubtful whether it will elicit any general interest in the trade. We might assure the trade that it contained a divine revelation on the subject, and the chances are that it would produce no permanent effect. Every man would go home and do nothing.

MORE DISCIPLINE AS WELL AS MORE INSTRUCTION NEEDED.

The truth is, the American people are becoming demoralized in their pursuit of wealth. I remember that, in the early part of the war, many good people said, when our men were marching to the front, "What shall we do when all these soldiers come home? They will be demoralized in the army!" The fact was, however, it was the people who stayed at home to make money who got demoralized. We had young men from our shops who went into the army and who came home infinitely better than when they went. They were common soldiers, too. They had learned—what the average American needs more than anything else—they had learned *discipline*. Our schools, too, need discipline. We call ourselves "the great American nation," and refuse to adopt many excellent methods used in older nations for training their youth.

IMPORTANCE OF EARLY INSTRUCTION IN DRAWING.

When I want boys of special skill, of whom to make draftsmen, I have to go to a public school outside of this city, which is conducted under the German system of education. These German boys have, from their infancy, had some ideas of art given to them, perhaps in a rude way, but in the school from which we draw our best boys they get excellent practical instruction. In the Kindergarten School in the same place, as soon as little children are able to toddle, a slate and pencil are put into their hands, and they are taught the rudiments of drawing; and when a child—or a man, for that matter,—learns to draw a graceful curved line he has elevated himself, and he has more respect for himself. I know many good mechanics who work well with their hands, but have never learned to use their brains, simply from lack of early training at school. Having no knowledge of drawing, they are unable to create anything. Many of them cannot take up a drawing and work from it, even in their own trade. They cannot understand it. I know a gentleman who built a country house within fifty miles of New-York City; he wanted to build a fireplace of brick, and had a working drawing made for it by an architect, but he could not find a man in Orange county who could understand the drawing. They had never been taught even the simplest rudiments of that important branch of a mechanic's trade. I would have every boy and girl educated at the public expense, learn to draw. In this country the mechanic is equal, and probably superior, in working power, to the mechanic abroad. But compare him with the Frenchman in taste or design. The Frenchman is instinctively an artist. He may be only a laborer, but he has the intuitions of an artist. Why is it that France supplies the world with things of beauty? Because for fifty years the French government has provided the means to educate the taste of the working classes. Of course, under our form of government it cannot be done in the same way in this country; but what the government does in France the people should do here. England is now waking up and following

France. The United States, outside of two or three leading cities, is doing very little in this direction. New-York is not doing her part, although it is full of millionaires whose property is here, and who have the largest interest in improving the intellectual condition of the mechanical classes. They stand aloof, and do not show a proper interest in promoting technical education. Their hearty support would be enlightened self-interest, for schools enhance the value of property and promote the general good. But our people have made money so rapidly that there is an indifference to everything but money making. We have no parental government, of course; and so, when the citizen lets things go as they will, there is no help for it. In Germany, the government believes it is under obligation to properly educate the masses, in order to secure better workmen and better soldiers. In the absence of that official authority in this country, which would usurp the powers and duties of the citizen—and I certainly do not want to see that sort of authority established here—the citizens must be awakened to the necessities of action in this direction, and every man must do his part, and public opinion must be brought to bear on this subject.

(To be continued.)

HOW TO KEEP WELL.

OR AILMENTS COMMON AMONG CARRIAGE MECHANICS, WITH HINTS HOW TO CURE THEM.

BY A NEW-YORK PHYSICIAN.

[An abstract of suggestions verbally communicated to our Editor, by Dr. Edward L. Partridge, of New-York, in response to inquiries addressed to him.]

CHAPTER I. WOODWORKERS.

WOODWORKERS, although engaged in an active and generally healthy trade, are nevertheless exposed to certain minor injuries consequent upon the nature of the occupation, as well as to certain diseases.

I. INJURIES.

CUTS AND BRUISES, though not usually severe, may, from improper treatment, lead to prolonged incapacity for work. Two special cautions to be followed are, first, to bestow sufficient care and rest upon the injured part in the beginning, in order to avoid prolonged absence from work; and secondly, to avoid over-treatment, and permit recovery to take place by rest and nature's methods.

FOR MINOR CUTS, first cleanse the wound in tepid water, removing small fragments of dirt, splinters of wood, metal, etc.; and if no special bleeding occurs, bring the cut surfaces together, and bind them with strips of clean linen or cotton, as from a handkerchief, as the most available article.

Do not apply to such minor wounds melted glue, cobwebs, balsam of fir, turpentine or other foreign material, which might interfere with natural healing. Water is quite sufficient in all ordinary cases. Rest the part injured, for, by constant moving, the wound is disturbed and the healing retarded.

In case of inflamed or "festered" cuts, which are usually caused by the presence of dirt, or failure to give early and proper attention, or by injudicious use of the part, use wet applications, such as witch-hazel and water, or "Pond's Extract," which is practically the same thing. In applying such wet applications, do not use too many layers of bandage, for the benefit to come from this kind of treatment is by the cooling effect of evaporation, which would be counteracted by the heat of thick bandages. If the inflamed condition persists after twenty-four or forty-eight hours, with considerable pain and some discharge, it is owing to more severe inflammation, or to the presence of clotted blood, retained pus, dirt or some foreign material in the wound; and hot poultices of flaxseed meal may then be applied to promote their discharge. If no improvement promptly follows, the advice of a physician should be sought. If the part is too much injured to permit the continuance of work with it, always keep the part elevated as much as possible, to prevent the blood from settling into it and feeding the inflammation. For instance, a hand should be suspended constantly from the shoulder in a sling; or a foot should be placed on a level with the body.

SEVERE CUTS are liable to lead to excessive bleeding from a wounded artery. In such cases, firm pressure with clean cloths, either directly on the wound, or after bringing the wound together, applied externally to the part injured *uninterruptedly for some minutes*, will usually check moderate hemorrhage. If the hemorrhage is persistent and severe, promptly seek medical aid.

If the wound is a ragged and irregular one, as might be produced by a circular saw, in which there is considerable gaping, adhesive plaster or stitches, if applied early, will often greatly shorten the time required in healing. Do not use for this purpose the ordinary sticking-plaster, which requires to be wet before application, because it becomes stiff and irritating; but use ordinary surgical plaster, which sticks after being heated. In the case of large and more severe cuts, which call for neatness and

skill in closing, or for the application of stitches, the practiced hand of the physician is always desirable. We again emphasize the fact that no foreign materials should be employed for such wounds, except under suitable advice.

SEVERED PARTS.—In case of severed parts, as of a finger, it is often questionable whether a replacement of the fragment, with the stiffness that is almost sure to result, will repay for the effort. If this is desired, then thoroughly cleanse both cut surfaces in very warm water, replace as accurately as possible, and keep in position until medical aid can, by

made to the burn, prick the skin in several places with a needle, to allow the water in the blister to escape drop by drop, and allow the skin to fall back to about its proper position. The severe pain attending burns and scalds comes mainly from contact of the injured surface with air; therefore cover the part as quickly as possible with some thick, oily material. "Carron oil," which is a mixture of raw linseed oil and lime water, kept prepared in all drug-stores purposely for such injuries, is the best application. Linseed oil or flour, or an application of the first, followed by the flour sprinkled on, answers the purpose very well. Then



DREAM OF THE TANDEM DRIVER.—BY GRAY-PARKER.

stitches or other surgical dressing, firmly attach the part. Partially detached portions of fingers may not require stitches.

SEVERE BRUISES.—In all cases of severe bruise, where the skin is not torn, first be sure that no bone is broken. Rest, and cooling evaporating lotions, such as vinegar, witch hazel, or arnica, diluted at least one-half with water, are both comfortable and prevent inflammation.

If there is even a suspicion of a broken bone, seek the physician's advice; but take time enough to secure a good one, for it is far preferable to rest quietly a few hours while seeking such, than to hurriedly obtain the nearest and perhaps an incompetent physician.

BURNS AND SCALDS.—In the case of burns and scalds, as from steam, melted glue, etc., be careful not to tear away the skin raised by the blister; and to prevent this being done accidentally by applications

the application of loose cloths, saturated in some oily liquid, further protects the injured part. Subsequent treatment will depend on the depth and extent of the injury, and the presence or absence of inflammation.

In examining to learn the character and extent of every cut, bruise or scald, some one cool and clear-headed person should be allowed to take entire charge of the injured man, as a great variety of suggestions, even from the best disposed lookers-on, accomplish nothing, and tend to confuse the one in charge, and interfere with the best result to the injured person.

II. DISEASES.

The diseases to which I understand woodworkers are especially liable are catarrh, caused by the dust arising from sandpapering, etc., and rheumatism, from exposure to draughts from windows, which are often

thrown open after gluing has been done, and when the temperature of the room may necessarily have been high.

With both these diseases, to avoid the exposure producing them as far as practicable is of more importance to the woodworker than any amount of medicine taken after they are contracted; and those having tendencies toward them, either inherited or by reason of previous attacks, should exercise special caution.

CATARRH.—For catarrh, an inflammation of the mucous membrane, which may be attended by either a dryness of the parts or excessive secretion, the use, each morning and evening, of a weak solution of common salt in water as a gargle, and to snuff up into the nostrils until it is felt trickling back into the throat, while not curative, has a tendency to lessen the irritation in these parts.

RHEUMATISM.—To avoid rheumatism and other diseases incident to draughts or sudden changes in temperature, wear flannel next to the skin,—not necessarily heavy, but adapted to the season of the year. For aches of a rheumatic character, a stimulating liniment of almost any kind, such as the ordinary chloroform liniment, or one containing ammonia, with vigorous friction, is useful; and the part should be protected by an extra thickness of warm flannel. Some internal treatment is necessary to all forms of rheumatism, which always depends on an unhealthy condition of the blood.

[To be followed by Chapter II, on Ailments Common to Blacksmiths.]

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING FEBRUARY, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between February 5th and 26th of the current year.

FEBRUARY 5TH, 1884.

Buggy Spring Gear.....J. R. Hawkey, Park Hill, Ont., Canada.
Buggy Top.....D. Nunnally, Keene, Ky.
Horse Detacher.....W. M. Walker, Fulton, Ky.
Sleigh.....W. H. Winne, Meridian, N. Y.
Bob-sleigh.....H. Detamble, Aurora, Ill.
Spoke-setting Machine.....J. H. Hurlburt,¹ Millbrook, Mich.
Thill Coupling.....E. Hoxie, Red Creek, N. Y.
Vehicle Running Gear.....W. A. Dawson,² Stony Point, Cal.
Vehicle Seat.....A. M. Plimpton, Hornellsville, N. Y.
Two-wheeled Vehicle.....F. Coleman, Ilion, N. Y.
" ".....H. H. Heeb & Schonert, Fayetteville, Ind.
" ".....A. F. Sargent & R. D. Farrell, Geneseo, Ill.
Whip-socket.....F. A. Bradley, New-Haven, Conn.
Hose-cart.....C. R. Thompson, Fort Omaha, Neb.
Wagon End-gate.....J. D. Mack,³ Salem, N. Y.

FEBRUARY 12TH.

Carriage Curtain Fastening....J. Sage, Lockport, N. Y.
Rein-holder.....L. A. Koplin, Akron, Ohio.
Spoke Extractor.....R. N. Caughell, Shedd, Oregon.
Thill Coupling.....O. C. Mehurin, Newark, Ohio.
" ".....O. Tower,⁴ Wilson, N. Y.
Anti-rattler for Thill Coupling..J. N. Berry, Boston, Mass.
Vehicle Spring.....G. E. Blaine, Ringgold, Ga.
Two-wheeled Vehicle.....H. Greenfield,⁵ Harrison, N. J.
" ".....G. E. Guerne, Santa Rosa, Cal.
" ".....G. W. Kerr, Bridgeport, Conn.
Propelling Vehicles.....B. S. Moore, Austin, Texas.
Wagon Circle Iron.....J. Massey, Salem, Mo.
Wheel.....G. W. Howell, Covington, Ky.
" ".....J. B. Neff, Burlington, Ia.
Whip-holder.....S. J. Boswell, Quebec, Canada.

FEBRUARY 19TH.

Axle Attaching Device.....Albert Fontayne,⁶ Chicago, Ill.
Carriage-seat Corner-iron.....H. A. Moyer, Syracuse, N. Y.
Device for Suspending Car-
riage Tops.....P. Marqua, Cincinnati, Ohio.
Pleasure Cart.....H. A. Moyer, Syracuse, N. Y.
Rein-holder.....J. L. Thomson, " "
Machine for Milling off the
Hub ends of Wheel Spokes } J. Barnet, Lafayette, Ind.
Tenon-boring Machine.....W. W. Hosler, Petoskey, Mich.
Thill Coupling.....F. P. Musser, Beaver Falls, Pa.
Vehicle Wheel Tire.....C. J. Clarke, Mt. Crawford, Va.
Wagon Tongue Support.....N. Johnson, Harrisburg, Ill.
Trace-carrier.....W. M. Smither, Keene, Ky.
Vehicle Running-gear.....J. I. & C. F. Nissen,¹ Salem, N. C.
Vehicle Spring.....E. S. Smith, Ovid, Mich.
" ".....W. Van Anden, New-York, N. Y.
Two-wheeled Vehicle.....F. Doherty & Sies, Crawfordsville, Ind.
Wheel-rack.....H. W. Ransom,⁸ Cincinnati, O.

FEBRUARY 26TH.

Carriage Axle.....J. Gowland, Philipsburg, Pa.
Carriage Wheel.....E. P. Lynch, Davenport, Ia.
Breeching Attachment for Car-
riage Shafts.....S. W. Booksh, Baton Rouge, La.
Sleigh Runner.....F. J. Larkin, Kenosha, Wis.
Thill Coupling.....N. R. Baker, Greene, N. Y.
Vehicle Spindle.....C. E. Murray, Brandt, Ohio.

Vehicle Spring.....C. C. Bradley, Syracuse, N. Y.
" ".....S. D. Lance, Columbus, Ohio.
Two-wheeled Vehicle.....L. F. Castor, Philadelphia, Pa.
Vehicle Wheel.....F. L. P. Fish, East Saginaw, Mich.
Wagon Bolster and Spring.....B. G. Meinikheim,⁹ Newtown, N. Y.
Wagon Thimble and Skein.....A. J. Beach, Linden, Mich.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 165 Broadway, New-York City.

- ¹Assignor of one-half to George Haggitt, same place.
²" " "one-fourth to E. K. Evans, same place.
³" " "one-half to George H. Redway, Albany, N. Y.
⁴" " "one-half to Henry M. Davis, same place.
⁵" " to Hincks & Johnson, Bridgeport, Conn.
⁶" " "himself, I. Pflaum, same place, and J. S. Williams, Hyde Park, Ill.
⁷Said C. F. Nissen assignor to C. F. Nissen & Co., same place.
⁸Assignor of one-half to the Emerson & Fisher Co., same place.
⁹" " to himself and Charles Cook, New-York, N. Y.



CORRESPONDENCE.

TRADE REPORT FROM AMESBURY, MASS.

AMESBURY, MASS., March 19th.

FOR a number of weeks past there has been but little to report in this carriage center; but, in the face of discouraging advices, our builders kept hopeful up to the first of March, though little was done up to that time, and even this was mainly in the interest of the employes rather than the employers.

With the advent of March, orders for future delivery commenced; and many small orders for immediate delivery have already been received; and a better feeling now prevails.

Biddle, Smart & Co. report that their sales for January and February trebled those of the corresponding months of last year, but this was the exception.

Since the first instant several large orders have been placed, and the prospect of better trade is brightening. There also appears a desire on the part of our builders to improve the grade of carriages, which is likewise encouraging.

The *Boston Herald* of the 11th inst. states that the Linden Spring Company, manufacturers of carriage springs, 29 Oliver-st., Boston, has failed. It is expected that the dividend will be light. Most of the indebtedness is to parties out of town. Affairs have been put into the hands of a committee of creditors for investigation. The company manufactures its goods at Walpole, N. H.

The firm of Chas. Wing & Co., carriage findings, was burned out on March 1st, but immediately resumed business in the mill building directly opposite their old store in Union Block. Loss, \$12,000; insurance, \$7,000.

F. A. Babcock has returned from an extended trip through the Southwest and Northwest.

Nahum Starkey and G. W. Crowther have been granted a patent on a new and improved two-wheeler.

The Amesbury and Salisbury Carriage Builders' Association met at the office of F. A. Babcock & Co., on the evening of March 11th, and chose the following officers: President, R. F. Briggs, of the firm of R. F. Briggs & Co.; Vice-President, Robert Drummond; Secretary, Fred. W. Nelson, of the firm of E. S. Felth & Co.; Treasurer, John S. Poyen; Transportation Committee, F. A. Babcock, W. E. Biddle, and A. N. Parry. The scheme proposed is to systematize rates of transportation; and, while doing this, the committee will agitate the subject of procuring a new outlet other than the Eastern Railroad.

Since our last report, C. E. Stone has retired from the carriage business, and Dennett and Rines have taken the buildings formerly occupied by him.

John S. Poyen & Co. have one of the largest and best arranged warehouses for the carriage findings business in New-England, and report a good business, which they well deserve.

AMESBURY.

FLY-LEAVES FROM A TRAVELER'S NOTE-BOOK.

VI. LOCALITY: WISCONSIN.

EDITOR OF THE HUB—DEAR SIR: Following my Western flight, already begun in your February number, I now give you something of trade news from Wisconsin.

CLINTON JUNCTION, WIS.—Starting in at Clinton Junction, we find the Wallis Carriage Co., formerly F. P. Wallis & Co., but now a company, with Mr. Edwards, Sen., as President, Mr. Edwards, Jr., Secretary, F. P. Wallis, Superintendent, and Mr. Phillips as salesman. This concern has always done excellent work, and has a fine reputation throughout the Northwest. They, with so many others, had a poor trade last Fall, but no doubt will do their full share during the coming Spring season.

JANESVILLE, WIS., is a fine growing city, and has for some years been a good carriage market. The leading builder there is now H. Buchholz, late Hodge & Buchholz, as, since Mr. Hodge's decease, Mr. Buchholz has been alone in the

business. He is doing well, and reports a constantly-increasing demand for his work, which is as good as can be had in the State. He has quite a demand for a light omnibus, or what is called down East a "barge," for the use of hotels, etc. His light work is excellent, and he cannot fail to build up a large trade in his part of the State.

WHITE WATER, WIS., turns out but little light carriage work at present, but contains a few small job shops that build a little light work to order. The main concern in the city is the White Water Wagon Co., which is doing a large and increasing business in farm wagons, with a few platform or three-spring wagons to go with them. This company, like most such large wagon-makers, has a large capital and is very successful.

MILWAUKEE, WIS., has several fine carriage concerns, including Thomas H. Brown & Co., John Meincke, George W. Ogden & Co. and J. P. Wechselberg, which are the leading four.

T. H. Brown & Co. have been in the business many years, and have a fine reputation for good work and fair dealing. Mr. Brown served the city as mayor for two years, and is said to have been one of the best officers the city ever had. This firm is doing a good business, and can be classed as one of the leading carriage houses in the Northwest. They also sell more or less heavy carriage work made at New-Haven.

John Meincke has also been in Milwaukee for many years. He started in a small way, but now has one of the best shops in the State. His trade runs largely to heavy work of the finer grades. He has been successful and is "well-fixed." He is a fair dealer and does excellent work, and could do much more than he does were he not inclined to take the world easy, which he can, no doubt, well afford to do.

Geo. W. Ogden & Co. have also been here many years. They have a large and roomy shop, and are doing a fine business. They carry one of the largest stocks of finished work of any firm in the State. They have as superintendent Mr. Edward Holmes, formerly of Bridgeport, Conn., and later from Syracuse, N. Y. Mr. Holmes is one of the finest mechanics in the business, having had large experience in both light and heavy carriage work. Their trade in fine new carriages is on the increase, and in another season, no doubt, they will do more than ever. This firm also sells New-Haven heavy carriages.

J. P. Wechselberg, formerly of the house of Wechselberg, Brown & Co., which sold out to Mr. Thomas H. Brown, has again, after a retirement of a few years, returned to his old business. He is an excellent mechanic, has many friends, and is building up a nice business again. He is in every way reliable, and is entitled to and will, no doubt, win success.

There are several other large jobbing shops in Milwaukee doing heavy work, as there are in all large cities like this, but the ones above named are the leading concerns engaged in fine carriage work.

RACINE, WIS., has several small shops doing light work, but is mainly noted for its heavy wagon trade, which includes Mitchell, Lewis & Co., Fish Brothers, and the Racine Wagon and Carriage Co., to say nothing of its being the home of the famous trotter, "Jay-Eye-See."

KENOSHA, WIS., also boasts of one of the largest wagon factories in the West, that of the Bain Wagon Co., and there are also several small shops here, but I do not know enough about them to report in detail.

RIPON, WIS., has two carriage shops, namely: those of H. J. Goodall, and W. M. Treanore. They are both doing a fair local trade, and enjoying a good safe business, and are strictly reliable and good mechanics. Mr. Treanore has the shop formerly occupied by Dodge & Manville, who at one time did quite a large business. Mr. Manville has retired from business, and poor Si Dodge has passed away. "Peace to his ashes!"

OSHKOSH, WIS., has two large firms: J. L. Clark & Son, engaged in medium and fine carriages, and the Oshkosh Carriage Co. Neither is just now working to its full capacity, partly because the trade in the large wholesale centers was overdone last season, and they all, no doubt, find it necessary to go a little slow this winter. Thos. Neville, formerly with my old friend Jack Parsons, has a small shop and is doing fine work, chiefly to order. He is a fine mechanic, and will no doubt succeed.

BERLIN, WIS., has but one regular carriage-builder at present, Mr. William Hitchcock, who has been enlarging his shops, and intends during the coming season to do a larger business than before. He is not only a good mechanic, but in every way a fair, square man, and he will no doubt have all the success such a man is entitled to.

MADISON, WIS., is one of the finest little cities in the Northwest, though there is not much carriage-making there at present. Wm. Farrell, who has been in business here about twenty years, has recently sold out to August Schmidt & Co. Mr. Farrell did well in the business while engaged in it, and made money. I understand he has enough now to take the world easy. His successors are good mechanics and hard-working men, and promise to succeed. Mr. Farrell turned over to them a fair trade and a good name, and this they are sustaining. The Wisconsin Wagon Co. is a new concern which makes a specialty of a patent wagon for business purposes. Mr. C. Hanson is the superintendent, and Dr. I. A. Mack, a young man of good business ability, the secretary and business manager. They are going slow, but intend, in due time, to push the trade into much larger proportions than now.

BELOIT, SPARTA AND PORTAGE CITY, WIS., depend largely on outside work sent in for sale, and very little work is made in either place.

LACROSSE, WIS., has two or three small shops, the largest of which is that of Voigt & Ritter, who have a good jobbing trade and build some new work. This is a fine growing city, but doesn't seem to be much of a place for carriage-making.

WEST SALEM, WIS., contains the shop of A. W. Ayers, who has been there for ten or twelve years; and, from the fact that he sticks so well, I presume he is doing fairly well. He sells his product largely in LaCrosse, as he is near that city.

Yours most truly,

E. D. MOORE,
Of the Royer Wheel Co.

TRADE REPORT FROM NEW-HAVEN, CONN.

WE found trade in New-Haven, on our last visit, in an improved condition. All parties were busy, preparing for the spring trade. Most of the shops were working with an increased force, and on longer hours. As in the preceding year we found in several factories that some changes had been made in the outlines of the new patterns, while others had not altered the lines to any perceptible extent.

Messrs. Durham & Wooster, No. 57 Chapel-st., have a fine stock on hand, mostly heavy carriages, and in the body-shop nearly all the hands were working on heavy work also. A very neat Ladies' Phaeton, with rumble, in process of ironing in the smith-shop, specially attracted our attention. This Phaeton was supplied with an umbrella top.

Messrs. Henry Hale & Co., No. 60 Franklin-st., have a full complement of hands, all working on full time, and they report that business has been fair with them. We found several jobs under way on which the back quarters had curved instead of square corners. Noteworthy changes were also made on several other bodies in progress. We are greatly indebted to Mr. John Brill, foreman of the body-shop, and to Mr. Lee J. Aubry, foreman of the smith-shop, for courtesies shown us.

The Henry Killam Co., No. 47 Chestnut-st., remain among the few carriage houses which make their own axles, hinges, etc. Mr. Charles Francis is draftsman and foreman of the wood-shop, and Mr. Swind of the smith-shop. We beg to thank both for their kindness shown in accompanying us through the different departments, where we found much that was interesting and instructive.

The work done by Messrs. B. Manville & Co., No. 20 Wooster-st., ranks among the best built in New-Haven, and comprises almost every class of vehicles. This firm always keep well posted as to the latest styles. Mr. Henry Manville acts as the draftsman, and his thorough knowledge of the business is sufficiently proved by the character of the work turned out. The former wood-shop has recently been turned into a fine repository, thus filling a much needed want. Business with this firm is improving. Mr. Wm. Hawkins is foreman of the body-shop. [Since writing the above, the sudden death of Mr. Burritt Manville has been announced. See item on next page.]

Messrs. Kean & Lines, 32 Chapel-st., are making a specialty of heavy work, and also occasionally building a hearse, of which they have just finished a very fine specimen, built to order. The mountings and decorations are of gold, including the fringes of the festoons, interior fixtures, door-handles, etc., and the glasses are also striped with gold. The carriage work built by this house is mainly intended for livery purposes, and is particularly strong and serviceable. Steel rocker-plates are used exclusively. Mr. Lines will please accept our thanks for personally showing us through the establishment.

The largest carriage factory in New-Haven is that of Messrs. Henry Hooker & Co., 590 State-st. Although our visit preceded their annual spring exhibition, several of their latest designs had already been placed in the repository, two of which especially attracted our attention, namely, a Wagonet and a Six-passenger Rockaway. Several other novelties, including light Victorias and Carts, we saw in process of construction. Mr. George Cady, draftsman with this firm, is kept constantly busy making scale drawings and working drafts, and deserves great credit for his originality and skill.

Messrs. Cullom & Co., late Cullom & Spock, 108 Franklin-st., report business fair. Mr. Spock recently retired from the firm on account of ill health. The work turned out is mostly light, Four-passenger Rockaways being the heaviest. The work is conscientiously and well done, and finished in good taste.

Messrs. A. T. & C. B. Demarest occupy large premises at 65 Chapel-st., the former stand of Mr. Wm. H. Bradley, and are building both light and heavy carriages, including considerable export work. Among the ironwork we saw in the workshops two eight-spring running-gears, one for a Brougham and the other for a Victoria, both showing excellent workmanship. Mr. James P. Barker, draftsman and foreman of the body-shop, will please accept our thanks for numerous courtesies.

Messrs. M. Armstrong & Co. for a year past have occupied their new factory at No. 55 Chapel-st., which is conveniently arranged and well lighted. A number of two and four-passenger Cabs were in process of construction, intended for the New-York Cab Co. In all of these the curved line has been adopted for the back quarters. The painting of these cabs is showy and attractive, the lower quarters being a bright yellow, and the upper quarters and moldings, black. Mr. David Renfrew is foreman of the body-shop.

Messrs. Cruttenden & Co. occupy the space from 8 to 18 Wooster-st., and confine themselves mostly to heavy work. We saw some very fine specimens of Landaus, Coaches, etc., in the repository. All hands appeared to be busy, and business has been fair with this firm, according to the statement of Mr. E. Killam, one of the members of the firm. We are greatly obliged to Mr. Killam for kindly showing us through the various departments. Mr. Jones is the draftsman and foreman of the body-shop.

The Brockett & Tuttle Co., 91 Goffe-st., make light work a specialty, and have an enviable reputation in this line. The repository for the display of their new work, since the completion of recent additions, is one of the finest in New-Haven. The office is divided into two sections, and furnished in good style, especially that portion set apart for the reception of customers. The real estate connected with this establishment is large, and will permit of added facilities when necessary. No comments are necessary on the work done, as the name of the firm speaks for itself. Mr. Brown, one of the members of the firm, will please accept our thanks for the time devoted to showing us through the factory.

There are many other noteworthy carriage factories in New-Haven, but as it was our desire to call upon several body-makers to the trade, we had to deprive ourselves of the pleasure of visiting all, reserving that for a future visit.

A. K.



NEW-YORK CITY.

FIRE.—The varnish factory of Marx & Rawolle at 531 West 59th-st., New-York, was gutted by fire on the night of March 16th. Damage, \$40,000.

PERSONAL.—Mr. Lawson Valentine, of Messrs. Valentine & Co., sailed for Europe on Saturday, March 8th, for a vacation of two or three months in England and France.

MR. H. M. DUBOIS, of Philadelphia, gave a familiar talk before the Technical School in this city on March 12th. A condensed report of the leading points touched upon will appear in a subsequent number.

UHLER & BENTON, New-York City, whose Lewis Axle Machine is now well-known, can conveniently handle the goods, as agents, of some out-of-town manufacturers. This is a good chance to secure trustworthy and pushing agents.

CHANGE OF FIRM.—Mr. C. Coles Dusenbury, of No. 20 Murray-st., New-York, who has so long been known to the trade as a dealer in fine carriage cloths and trimming materials, has taken into partnership Mr. Wm. W. Bond, and the firm will hereafter be known as C. Coles Dusenbury & Co.

WHERE THRIFT MAY FOLLOW.—An esteemed correspondent has sent out some 250 circulars to the wagon trade, so he informs us, covering a number of States, asking what the prospects are. He learns that the majority are short of stock for the year's supply, and that the larger part expect to find a slow trade.

GRAY-PARKER'S PEN SKETCHES of horses in action are always interesting studies, and we present on page 40 an animated illustration, by him, of what a tandem driver may be supposed to suffer during his slumbers after a day's struggle with the ribbons. The same genial artist has now in preparation for *The Hub* a double-page illustration of a pair-horse buggy on the road, which we are sure will please our subscribers. We hope to present it in our next number.

HIGHLY INSTRUCTIVE.—The leading editorial in the March number of the *Carriage Monthly* is devoted to the consideration of the highly important but somewhat irrelevant subject of "Causes of Floods in the Ohio." The conclusion at which the editor arrives is thus intelligently expressed. He says: "Experience, science and philosophy teach that disastrous floods are always in consequence of too much water congregating in the same place. Its hydrostatic diffusibility renders it unpackable, and it monopolizes room that men have assigned to other things." The sufferers from the late flood will no doubt hasten to avail themselves of these valuable suggestions.

A NEW Carriage Repository, of large dimensions and special attractiveness, has just been opened in New-York City at the corner of Broadway and 51st-st. The proprietors are Messrs. Daniel Dull and W. H. Browne, who do business under the title of Dull & Browne. Mr. Browne has had long experience in the New-York carriage trade as manager for Jas. Cunningham, Son & Co., of Rochester. A full line of carriages will be kept in stock, a specialty being made of the productions of The Henry Killam Co., The Brockett & Tuttle Co., and Henry Hooker & Co., of New-Haven. The new building occupied by the ware-rooms is noteworthy both for its size and fine finish. It comprises three floors and basement, is 60 feet in width, and extends the full length of the block to 7th-ave. The offices are located on the main floor, and are fronted with immense plate-glass and colored windows. The building is steam-heated throughout, and admirably lighted.

THE CARRIAGE MONTHLY, in absence of more pertinent matter, devotes the "Editorial Department" of its March number to three leading articles, entitled "Causes of Floods in the Ohio," a pseudo-scientific paper of a most amusing character; second, "Bad Mistakes of *The Hub*," which contains such internal evidence of the weakness of the position recently assumed by it antagonistic to the Carriage Builders' National Association, that it is beneath serious notice; and third, a garrulous paper entitled "Brewster & Co. vs. Rufus Hatch," in which the opinions expressed by *The Hub* and *Coach, Harness and Saddlery* are assailed with its accustomed levity, and its own opinions concealed with a prudence that it might well assume more habitually. Moreover, any expression of opinion on the subject of feeling coachmen would seem gratuitous and impertinent in view of the acknowledgment which follows. It says: "We have nothing to do with this lawsuit. Not knowing the facts or issues as joined, we leave it with the judge. * * * We do not know that any coach-maker in America does pay from \$5 to \$50 as stated; and if we did, we would not know the particular circumstances, and would make no charges, not being detectives or redressers of other men's grievances." Granted! And this being the case, would it not have been just as well to leave this seven-eighths of a page unprinted, instead of devoting it to a subject which you thus freely admit you know nothing at all about? The "Causes of the Floods in the Ohio" would seem to represent a safer class of subjects for you to adhere to.

FREE-HAND DRAWING.—Lessons in free-hand drawing occupied the attention of the Corresponding Classes of the Technical School up to March 1st, and proved very satisfactory in their results. The series included eleven regular Lesson Papers, followed by one special Examination Paper. Very few of the scholars had any previous experience in any kind of drawing, and their first attempts were, as a rule, crude and uncertain; but they showed much interest in the subject, and, with very few exceptions, steady improvement was exhibited, which in several instances resulted in highly satisfactory work before the close of the first series. The work of Mr. Alexander Diebold, body-maker with Jas. Hall & Son, of Boston, Mass., was remarkable for its grace of outline and skillful execution, and received high commendation from the committee. Among other pupils who exhibited marked progress, the following deserve special mention: Frank W. Tucker, with Chauncey Thomas & Co., of Boston, Mass.; Chas. S. Hill, of North Andover, Mass.; Christian Bruenn, of Durand, Wis.; Horace E. Morrill, of Amesbury, Mass.; Geo. Wilson, of Janesville, Wis.; E. T. Gallig, of Mt. Pleasant, Westmoreland Co., Pa.; LeRoy Long, of Albany, N. Y.; Fred'k E. Quimby, of Amesbury, Mass.; Chas. Schon, of Cornwall, Orange Co., N. Y.; Edgar D. Eastman, of West Concord, N. H.; J. F. Montague, Carthage, N. C.; and John H. Mount, of Red Bank, N. J. The Corresponding Classes now number 168 members, representing 21 States of the Union, and new pupils are still coming in, who are promptly supplied with all back Lesson Papers, and thus given an opportunity to catch up with the others,

providing they are willing to make a little extra exertion. Prof. Gribbon tells us that the distances of corresponding pupils' homes from the parent school in New-York, range all the way from 20 miles (Newark, N. J.) to 3,400 miles (Stockton, Cal.) The committee express themselves as more than satisfied with the results thus far of this new movement in trade education, and consider it already an assured success. The pupils not only show steady development, but give evidences of an aroused and intelligent appreciation of the benefits to be derived from training the hand and eye to work in unison, which cannot but lead to the happiest results in whatever sphere of mechanical or artistic work they may hereafter choose as their vocation.

NEW-YORK STATE.

THE CORTLAND WAGON CO., Cortland, N. Y., report trade good. They are working 400 men on full time, and have a nice lot of orders on hand.

THE NEWARK VALLEY WAGON CO., Newark Valley, N. Y., who were burned out last autumn, are now again in full working order, and report trade good.

NEW-YORK STATE generally shows a very healthy condition of business in the carriage line, especially in the medium grades of work, both buggies and spring wagons. Eastern orders have been particularly gratifying.

THE TROY CARRIAGE WORKS are building a new factory, 53 x 53 ft., four stories, including all modern improvements, at Lansingburgh, (Troy) N. Y. The work built by the company will be of the finest grades.

A ONE-MAN WAGON.—The Whitney Spring Co., Poughkeepsie, N. Y., are building the body and gear for a one-passenger job that is symmetrical and well proportioned, and hung on the Edward Storm spring. It is taking well, and is being sent on orders to all parts of the country.

TRADE IN HORNELLSVILLE, N. Y., is quiet. Grannis & Ryan are doing a little something right along. Mr. Maxson is putting up his side-spring; and the St. Julien Spring Co. are pushing for all there is in sight. The Harris Mfg. Co. are ready to fill orders for an unlimited quantity of seats.

TRADE REPORT FROM WATERTOWN, N. Y.—The Watertown Wagon Co., report their February sales this year as only 9 short as compared with last year; and, only for the lack of freighting facilities, owing to the blockade of cars by heavy snows, they would have largely exceeded their output of 1883. The Babcock Buggy Co., of the same city, are working full time (10 hours), and report trade good. They have added spring wagons to their former specialty of fine light work, and have heavy orders on hand.

THE HITCHCOCK MFG. CO., Cortland, N. Y., which started seven years ago on a small scale, has steadily grown to its present proportions, with capital stock of \$150,000. During the coming season a new building will be erected, 60 x 200 feet. Last year 11,000 cutters and buggies were turned out, and this year the proposed product is 15,000. To Mr. Hitchcock personally is due the credit for the remarkable growth and success of this concern. Mr. Henry Gleason, the superintendent, has also been a congenial and valuable assistant, and continues in the same position under the new organization.

HUNTINGTON, LONG ISLAND, N. Y.—Carriage-making is becoming a prominent industry here. William Downs will begin, about the first of April, the erection of a new carriage factory, 40 x 80 feet, on a lot on Wall-st., near Main-st., which he has recently purchased. Messrs. Rogers and Grummon have just opened their large new carriage factory on Main-st. Charles Vail, formerly of Huntington, has returned to open a carriage factory, beginning with an order for 50 light wagons for a New-York house.

QUICK WORK.—The E. D. Clapp Mfg. Co., Auburn, N. Y., recently received from Messrs. Sechler & Co., of Cincinnati, an order for the immediate shipment of top-irons for 4,000 buggies. The resources of their fifth-wheel works were shown by the fact that the order was shipped before night, the weight of the goods being 22,000 pounds. The company is now producing more goods than ever, and constantly enlarging its circuit of trade. The company was appointed agent for Harland's English varnish a few months ago, the Auburn agency being, with one exception, the only one between New-York and Chicago. The company has also lately begun the importation of English carriage cloths. Several large orders for goods from Australia and New South Wales have recently been filled. As will be seen, also, by reference to our business pages, the Company is turning out some very fine patterns in gear irons.

SYRACUSE, N. Y., hasn't done so badly this season. H. A. Moyer, carriage-builder of that city, reports that his sales during February, 1884, were only 5 jobs short as compared with February, 1883; and they would have exceeded the latter if he had only had the work ready. He has orders for over 900 jobs still unfilled. J. D. Whitney, of the Whitney Wagon Works, which were partly burned in January of this year, is now in full working order again, with increased facilities, and is working 12½ hours daily. This company have many orders ahead, principally for the Gorton Wagon, which is their leading specialty. Short and Smith have moved into their new factory, have sold their full product of 2,500 cutters, and are now busy with ordered work in the carriage line. Hotchkin & Wilder have also moved into enlarged premises, with increased manufacturing facilities, and have added platform and three-spring wagons to their former line of work. One new firm, Petherbridge & Norris, have this year gone into the carriage business, and are making a specialty of high-grade light work. The Lyons Mfg. Co. make buggies principally, and report trade fair. Penn & Lee are adding new machinery to their spring works, and are working 12½ hours per day.

NEW-ENGLAND.

DIED SUDDENLY, of heart disease, on Saturday, March 22d, Burritt Manville, aged 69 years, senior partner of B. Manville & Co., carriage-builders, of New-Haven, Ct. Obituary notice will appear in our next number.

A DESTRUCTIVE FIRE occurred in Amesbury, Mass., on Friday, Feb. 22d. The premises of Chas. Wing & Co., occupying two stores on Water-st., were entirely destroyed. Their stock consisted of carriage findings and hardware, valued at \$12,000, on which they report an insurance of \$6,000. The firm's safe was taken from the ruins, and the books and papers found in good condition.

54,920 LBS. PER SQ. INCH.—Recent tests of the original Concord axles, made with the U. S. testing machine, at Watertown Arsenal, show that they have a tensile strength of 54,920 lbs. per sq. inch, while best Norway iron shows a strength of only 42,450 lbs., as tested at the same time and place. Full reports of these tests can be seen at the office of the Concord Axle Co., Penacook, N. H.

THE BRIDGEPORT CART CO., Bridgeport, Conn., although principally engaged on carts, also build many four-wheeled vehicles, and they had under way, at the time of our visit, a wagon to the order of the *New-York Herald*, for the delivery of that paper to local news agents. The body had just been finished. For a comparatively new house, this company are doing considerable business, and they are evidently doing it in a manner to bring them much more.

CHANGE.—Cullom & Spock, New-Haven, Ct., is now Cullom & Co., Mr. Spock retiring because of ill health.

SLEIGHING EXTRAORDINARY.—Mr. Zenas Thompson, Jr., writes as follows from Portland, Me., under date of March 11th: "I suppose you in New-York are out of the snow-drifts now! Well, in Portland we are just into them again. We have had more snow within the past two weeks, than during all the previous winter together. We have had excellent sleighing since December 18th, with level roads and fine even sleighing; but all is changed now, with drift upon drift—pitch poles and pitch holes. It is not likely, however, to last long. The sleigh trade has been very good indeed this season, all things considered; and we are hoping for a revival of the carriage trade this spring. We keep moving, and are getting ready. 'You can't sell 'em, if you don't have 'em,' my old partner used to say; and I mean to have 'em, and some good ones, too, spite of the cry of 'Too muchee pricee.' If I have to keep them, I can at least enjoy looking at a good job much better than at a cheap John."

MIDDLE STATES.

FIRE.—On Jan. 15th, the wagon factory of Klein Bros., Hoboken, N. J., was destroyed by fire. Loss, \$4,600; insurance, \$4,100. It is thought that the fire originated from the boilers.

THAT UMBER FILLER.—Reno Bros., Pulaski, Pa., are busily at work getting out their filler, and it is each year enlarging its circle of friends. The aim of the house is to make something standard, and that can always be relied upon for quality and worth.

THE HENRY SPRING.—Vaughn & Son, Greenville, Pa., are fitting their buckboards with the Henry single-leaf spring, and are having the happiest results from its employment in this work. This house is turning out some superior work, and is having a good trade, considering the season.

THE LEHIGH WAGON CO., Leighton, Carbon, Co., Pa., have just issued a new illustrated catalogue and price-list of carriages and wagons, including their celebrated specialty of platform-spring wagons with Romig's patent platform, 40 pages and cover, which is well worth asking for.

THE WHITE BUCKBOARD.—Geo. White & Co., Greenville, Pa., are quite busy. Their gears can now be had of some of the leading dealers, and the Youngstown Carriage Co. are hanging up a large number. The construction of this serviceable vehicle may be seen by reference to our business pages.

ANSON SEARLS, of Newark, N. J., has just issued a highly attractive catalogue and price-list of his spring styles of whip-sockets and carriage mountings, comprising 48 pages, and profusely illustrated, which is well worth applying for, by postal-card, by both present and prospective customers.

WESTERN STATES.

THE PERRY CART.—The Abbott Buggy Co., Chicago, Ill., are making preparations to build 5,000 road-carts, using the Perry patent.

INCORPORATED.—Hynes & Co., Quincy, Ill., is now the Hynes Carriage Co. They continue under the old management at the old stand.

FIRE.—The dry-house connected with Mitchell, Lewis & Co.'s wagon works, Racine, Wis., was destroyed by fire on the morning of Feb. 28th. Loss, \$15,000.

STANDARD SIZES.—F. McKinnon & Co., Centralia, Wis., in conjunction with other hub manufacturers, are agitating the question of standard sizes for wagon hubs. This is a needed reform and ought to prevail.

THE CLEVELAND CARRIAGE BOW CO., Cleveland, Ohio, have added the Sells platform gear to their manufactures. This is a simple, strong and practical platform gear, and will, no doubt, meet with a good sale.

TAKEN A PARTNER.—Walter & Miller, have admitted another partner. As soon as it is decided if they will remain in Fremont, O., preparations will be made to largely increase their shops, both in size and effectiveness.

THE ASHTABULA BOW.—The Ashtabula Carriage Bow Co., Ashtabula, O., are now in the full tide of a successful trade, and their bows are taking well. This bow is perfected to a point that will meet the requirements of critical builders.

TOPLIFF vs. TOPLIFF.—A suit of considerable interest to the carriage trade, between Topliff & Ely, of Elyria, O., and I. N. Topliff, of Cleveland, which has been pending for some time, has been decided in favor of the defendant, I. N. Topliff.

A JOY FOREVER.—That is what a thing of beauty is said to be, and this is the way we look at the new catalogue of the Parker Carriage Goods Co., Cincinnati, Ohio. It is full of good things, and the prices are not protective, but for revenue only. Send for it.

A CORRESPONDENT IN COLUMBUS, O., writes as follows: "The outlook for trade with us the coming year is not quite as flattering as it was last year at this time, but we are in hopes that when this winter weather lets up, and the grass commences to grow, we shall have our usual rush."

"**COLOR IS NOW KING,**" would seem to be the motto which the Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich., are now working for all it is worth. Eleven colored pamphlets and circulars, illustrating the merits of their specialties, are now before us. We find them dazzlingly attractive. They ought to take well!

THE HERBRAND CO., Fremont, O., have recently perfected the Herbrand gear, and added some new styles. The No. 3½ set of irons is a noteworthy one. The set is forged solid from best Norway iron, thus avoiding all danger of accidents from breakage. The fifth-wheel is made in three pieces only. The company report trade good.

ANOTHER CINCINNATI HOUSE.—On Feb. 1st, the firm of Hess & Co. opened a carriage and wagon factory at No. 24 Lodge-st., Cincinnati, O., where they are now preparing for the spring trade. Mr. John Hess, the senior partner, has had several years' experience as a practical carriage blacksmith, as partner in the late firm of Wilts & Co., and also as superintendent of the Wilts Carriage Co., and will personally superintend the manufacturing department.

LAWSON VARNISH.—The career of the Lawson Varnish Co., Chicago, Ill., has been one of uninterrupted success from its organization. Its business has more than doubled during the past year, and at its works the scene is one of ceaseless activity. There has recently been issued by the Company a new and very attractive price-list that is equally a credit to the Company and the printers. Send for one!

VERY ATTRACTIVE.—The quarters occupied by the Western office of *The Hub* have been very materially renewed and decorated. This office is in Valentine & Company's building, 68 Lake-street, and it is the last-named Com-

pany that has made the improvements. Their offices have been made deeper, and the desks more conveniently arranged, while new carpets, paper and fittings make the Chicago house of Valentine & Company one of the cosiest business places in the city. The Hub welcomes its friends to this, its western headquarters.

90,000 LAST YEAR.—The Hurlbut Mfg. Co., Racine, Wis., have recently added the following iron working machinery to their already extensive plant: 1 large size iron planer, 1 large size drill press, and 1 large size lathe. They are also building an improved power shaping and punching machine to be used in the manufacture of their various specialties, and a power machine for making wagon box staples. They report a very satisfactory year's business during 1883, the sales of the Hurlbut Lock for wagon brakes alone amounting to over 90,000 locks for the year.

TRADE REPORT FROM FT. WAYNE, IND.—L. B. Johns, of Ft. Wayne, Ind., is rushing his top business, and receiving orders from all sections. Mr. Johns commenced this business only a few years since, and has every reason to be gratified with the results achieved. A good article at a reasonable price is always an attractive bait for the commercial fish-hook. The Olds Wagon Works are very quiet, and the wheel works have plenty of room for orders. White's Wheel Works are busy on orders, and running full time. M. L. Albrecht is building a road cart in whose future he has faith.

TRADE REPORT FROM TERRE HAUTE, IND.—The shops in Terre Haute were rather quiet during March, but had done and were doing a fair business. Scott & Graff were engaged on repairs. Fouts, Hunter & Co. had increased their facilities, and were preparing to build a fair amount of work in addition to keeping on sale work by other makers. Olin & Co. were meeting with good success in introducing the Stickle spring; and the Keyes Mfg. Co. thought seriously of building farm wagons in addition to making wheels. They were in negotiation with Mr. Fish, of Racine, Wis.

FIRE.—Mr. E. B. Born, carriage-maker, of Allegan, Mich., apparently has much more than his share of ill luck. On March 12th he was again burned out. A communication received from him on the following day contains the following particulars. He says: "Allegan is mostly in ruins, and my office, two salesrooms, barn, lots of finished buggies and carriages, and a large amount of choice dry wood-stock have all been burned, the contents of my safe alone being saved. My factory, however, is all right and running as usual. My loss is between \$7,000 and \$8,000, only partially insured. This is the second fire I have had within six months past."

REPORT FROM KALAMAZOO, MICH.—The Kalamazoo Spring and Axle Co. having absorbed Egleston's Works, is now the only concern of the kind in this city. The Kalamazoo Buggy Co. has appealed from the recent decision of the court in reference to its suit for the right to use its present name, and the controversy is not yet decided. This company turned out and sold 1200 sleighs during the season just closed, and are preparing to build 3000 sleighs, and the same number of wheeled vehicles during the present season. This is a good record for a new concern. The Kalamazoo Wagon Co. intends to enlarge its shops to double their present capacity, and to turn out more work proportionately.

TRADE REPORT FROM COLUMBUS, O.—Affairs at Columbus, O., were quiet during the winter months. Mr. M. T. Gleeson, however, has had a large and growing trade in his carriage mountings, which are now appreciated and largely called for outside of his own city. Daugherty & Fish are going into the manufacture of seats and shifting rails, not confining themselves to a patent specialty, but aiming to supply any design to order according to the ideas of the customer. The Excelsior Seat Co. is fairly busy. The Columbus Bolt Works, as usual, keep pace with the requirements of the best trade. The death of Mr. Ayers has thrown the affairs of the late firm of Ayers, Mithoff & Co. somewhat out of joint, and it is not yet possible to say how the firm's business will be liquidated.

REPORT FROM ROCKFORD, ILL.—L. M. West proposes to increase his manufacturing facilities to keep pace with the growing demand. He is introducing an improved harness soap, that is very well liked. Ford & Fellows are doing nicely but are not driving, which is hardly to be expected at this time of year. The Neumeisters, Anton and August, are doing a fair trade. The Rockford Neck-Yoke Co. is a new concern, just getting ready to introduce a new neck-yoke. Haight & Sovereign are having a good trade with their neck-yoke. W. F. & John Barnes are about to add a foundry to their factory, enabling them to make their own castings. Their machine shop is one of the cleanest, most orderly and best arranged places it would be possible to find. They have added to their catalogue a new power drill and also a lathe, which, together with their foot-power specialties, make a line of machinery well adapted to the carriage-maker's use.

TRADE REPORT FROM CINCINNATI, O.—The recent floods deprived Cincinnati of a good month's trade, but there is no lack of cheerfulness. Those who suffered from the overflow are pulling themselves together bravely, and others are going along as if nothing had happened. Some are busy—quite busy; while others are not rushed. The Favorite Carriage Co., the youngest of the factories, is very stirring. The Queen City Forging Co., anticipating high water, were soon in shape to resume after its subsidence, and are now turning out work with renewed energy and largely improved and increased facilities. The Active Mfg. Co. are going along very steadily. Jno. F. Wilts, formerly of the late Wilts Carriage Co., has established himself at No. 306 Main-street, as manufacturers' agent, and is controlling a line of standard goods. Altogether the Queen City is nothing daunted by too much water.

SOUTHERN STATES.

A REAL OPPORTUNITY.—In our "Labor Bureau," this month, will be found the offer for sale, in whole or in part, of one of the oldest and best established carriage and wagon factories in the South. These shops have had a large and established trade during forty years. The offer for sale is on account of the death of both partners. This is a rare chance.

THE FIFTH ANNUAL CONVENTION of the Georgia Carriage Builders' Association will be held in Atlanta, Ga., on Wednesday, May 14th, 1884. The constitution having been changed at the last session, active membership is now open to every carriage and wagon maker of the Southern States who will apply for it, and it is hoped that there will be, at the coming convention, a full delegation of carriage makers from all parts of the South. Subjects of vital importance will be called up for discussion, including the following: I. What is the future of small or local carriage-builders? II. The perfecting and adoption of a just system of apprenticeship; and III. The building up in the South of factories to develop our native raw materials (wood and iron) into carriage supplies. Ample apartments will be secured to place all carriage specialties, such as springs and other patented novelties, so that they can be displayed with effect, and the association solicits contributions from the trade to assist in making this important feature a success. Persons desiring to attend, or to display novelties, should immediately communicate with the Secretary, Mr. J. W. Weitzell, Atlanta, Ga.

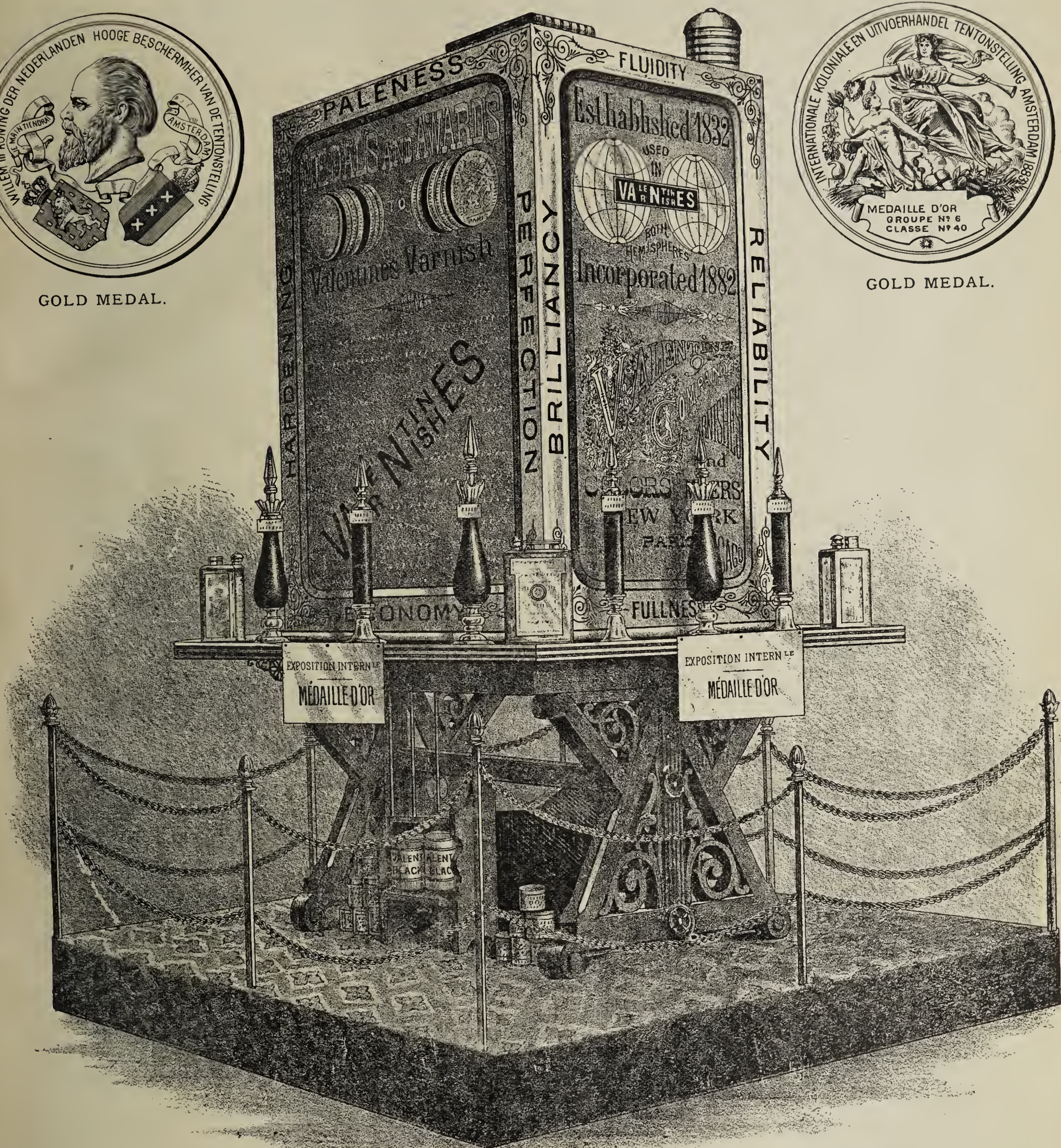
TRADE **VALENTINE'S** MARK.
"THE STANDARD FOR QUALITY."



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GOLD MEDAL.



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 68 Lake-street.

BOSTON,
 153 Milk-street.

PARIS,
 91 Champs Elysees.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Chas. H. Albrecht & Co., Cincinnati, O. 79
 Conrad B. Day & Co., Philadelphia, Pa. 70
 Dealers in Coach-makers' Materials.
 English & Mersick, New-Haven, Ct.
 Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
 Jno. A. Gifford, 17 Park Place, New-York..
 Kemper Bros., Cincinnati, O. 70
 Ten Eick & Kent, 1553 Broadway, New-York 70
 S. D. Kimbark, Chicago. 68

AXLES.

- R. Cook & Sons, Winsted, Ct. 49
 Carriage and Wagon Axles.
 Dalzell & Co. 77
 Improved Collinga Axle.
 Goodyear & Ives, New-Haven, Ct. 70
 Carriage Axles. Specialty: Steel's patent Sand-box Axle.
 A. D. Howe & Co., Coshocton, O. 76
 Self Lubricating Axle.
 Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa. 61
 Fine and Medium Axles. (See Also Springs.)
 A. E. Smith & Warner Axle Co., Wilmington, Del. 57
 The Quaker Axle.
 Wood, Smith & Co., Fort Plain, N. Y. 60
 Fort Plain Spring and Axle Works.
 F. W. Wurster, Brooklyn, N. Y. 58
 Axles of all kinds.

BODIES.

- F. T. Clymer, Wilmington, Del. 52
 Carriage Bodies and Carriage Parts.
 Jas. Driscoll & Sons Co., Springfield, O. 72
 Carriage Bodies for the Trade.
 Jackson Phaeton Body and Carriage Co., Jackson, Mich. 48
 Pat. Bent Sill Phaeton and Carriage Bodies.
 S. D. Kimbark, Chicago. 68
 Burr Patent Wagon Bodies.
 Miller Carriage Co., Bellefontaine, O. 72
 Bodies.

BOLTS.

- Columbus Bolt Works, Columbus, O. 50
 Carriage Bolts, Forgings, Clips, etc.

CARRIAGES FOR THE TRADE.

- Abbott Buggy Co., Chicago, Ill. 82
 Perry Cart.
 D. A. Altick & Sons, Lancaster, Pa. 60
 M. L. Albrecht, Fort Wayne, Ind. 53
 Heath Carts and Gears.
 Anderson, Harris & Co., Dayton, O. 68
 Carriages, Buggies and Phaetons.
 D. Argerbright, Troy, O. 66
 Road Cart.
 F. A. Babcock & Co., Amesbury, Mass. 59
 The Clarkson Road Cart.
 Forder & Co., Limited, London, Eng. 50
 The Royal Hansom.
 T. T. Haydock, Cincinnati, O. 63
 Buggies for the Trade a Specialty.
 L. B. Johns, Fort Wayne, Ind. 76
 Road Carts.
 Northwestern Sleigh Co. 82
 Carts.
 Renick, Curtis & Co., Greencastle, Ind. 53
 The Renick & Curtis Patent Road Cart.
 L. & M. Woodhull, Dayton, O. 71
 Buggies, Phaetons and Carts.
 Youngstown Carriage and Wagon Co., Youngstown, O. 55
 Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 25 Park Pl., New-York 70
 Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa. 52
 (Branches: New-York, Boston and Chicago.)
 Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
 Japanese Hair Mfg. Co., Jersey City, N. J. 58
 Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O. 83
 W. I. Atwood & Co., Amesbury, Mass. 55
 Fine Carriage Mountings.
 The E. D. Clapp Mfg. Co., Auburn, N. Y. 67
 Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
 C. B. Clarke, St. Louis, Mo. 56
 Silvester Patent Tire.
 C. Cowles & Co., New-Haven, Ct.
 Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
 Cortland Box Loop Co., Cortland, N. Y. 49
 Cortland Buckle Loop.
 Dayton Malleable Iron Co., Dayton, O. 54
 Carriage Hardware.
 W. M. Farr, Dowagiac, Mich. 55
 Common Sense Sand and Mud Band.
 M. T. Gleeson, Columbus, O. 78
 Fine Carriage Mountings.
 Herbrand Co., Fremont, O. 78
 Herbrand Gear Irons.
 Geo. W. Kerr, Bridgeport, Ct. 78
 Cart Irons.
 S. D. Kimbark, Chicago. 68
 Carriage and Wagon Hardware.
 R. H. Lassig, New-York City. 50
 Coach Locks and Hinges.
 Metal Stamping Co., New-York. 68
 Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)
 Queen City Forging Co., Cincinnati, O. 50
 Carriage Hardware.
 Rubber Step Mfg. Co., Boston, Mass. 72
 The Rubber Covered Carriage Step.
 H. D. Smith & Co., Plantsville, Ct.
4th cover page
 The "Encircled S" brand of Fine Carriage Forgings.
 Edward Storm, Poughkeepsie, N. Y. 56
 Carriage Mountings.
 H. M. Strieby & Co., Newark, N. J. 60
 Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
 Toppliff & Ely, Elyria, Ohio. 59
 Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
 Trenton Iron Co. 71
 Wire for Ties and Can Openers.
 Vehicle Shaft Supporter Mfg. Co., Cincinnati, O. 80
 Iron Shifting Rails.
 Walter & Miller, Fremont, O. 71
 J. H. Williams & Co., Flushing, N. Y. 83
 Steel and Iron Drop Forgings.
 White Mfg. Co., New-Haven, Ct. 69
 Pole Crabs.
 Wolff & Co., Cincinnati, O. 51
 Carriage Hardware and Woodwork.

IRON AND STEEL.

- McClure & Field, Boston, Mass. 55
 Specialty: B. & M. Tire Steel.
 S. D. Kimbark, Chicago. 68
 American and Norway Iron, Steel Tire, etc.
 Wm. & Harvey Rowland, Frankford, Philadelphia 64
 Iron and Steel. (See also Springs.)

LAMPS.

- C. Cowles & Co., New-Haven, Ct.
 (See also Hardware and Mountings.)
 Wigley & Co., New-York. 69

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 79
 A Substitute for Leather.
 T. P. Howell & Co., Newark, N. J. 51
 "Lion" Brand, Patent and Enameled.
 New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich. 58
 Little Giant Hub-Borer.
 J. W. Barber, North Adams, Mass. 74
 Spoke Tenoner and Wheel Horse.

- W. F. & John Barnes, Rockford, Ill. 62
 Foot and Steam Power Machinery.
 Bentel, Margedant & Co. 49
 Woodworking Machinery.
 Capital City Mach. Works, Columbus, O. 50
 Standish Imp. Foot Power Hammer or Oliver.
 Cordesman & Egan Co., Cincinnati, O. 54
 Carriage Wood-working Machinery.
 Defiance Machine Works, Defiance, O. 55
 Hub, Spoke, Wheel and Bending Machinery.
 Mason Wheel Co., Crown Point, N. Y. 74
 Wheel Tenoning Machine.
 H. J. Miller & Co., Goshen, N. Y. 69
 Felloe-boring and Spoke-tenoning Machine.
 Cyclone Mfg. Co., DeWitt, Iowa. 79
 Iowa Cyclone Hub Borer.
 H. A. Moyer, Syracuse, N. Y. 52
 Hub Boring and Boxing Machine.
 C. F. Pettingell & Co., Amesbury, Mass. 58
 Full line of Patented Carriage and Wheel Machinery.
 Uhler & Benton, New-York. 51
 The Lewis Axle Machine.
 Wiley & Russell Mfg. Co., Greenfield, Mass.
 Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, .. 60

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O. 55
 Coach and Car Colors and Varnishes.
 Carey, Ogden & Parker, Chicago, Ill.
3d cover page
 Coach and Car Colors.
 F. W. Devoe & Co., New-York. 60
 Carriage, Coach and Car Colors.
 Felton, Rau & Sibley, Philadelphia, Pa. 51
 Ivory Drop Black.
 Miles Bros. & Co., New-York.
 Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.
 Chas. Moser & Co., Cincinnati, O. 49
 Palm Bros. & Co., Cincinnati, O. 48
 Transfer Ornaments.
 Palm & Fechteler, New-York. 64
 Transfer Ornaments.
 Reno Bros., Pulaski, Pa. 56
 French Umber Filler.
 A. Smith & Sons, New-York City. 64
 Chas. D. Thum, Philadelphia, Pa. 50
 Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.
 Jno. L. Whiting & Son, Boston, Mass.
 Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.

PUBLISHERS.

- "The Hub," New-York City. 53, 56, 77, 79, 80

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind. 68
 Gears.
 Bridgeport Spring Co., Bridgeport, Ct. 59
 Fine Carriage Springs. Saladce Crescent and Timken Cross-springs.
 Canton Spring Co., Canton, O. 80
 Carriage, Wagon and Seat Springs.
 Cleveland Carriage Bow Co. 67
 Sell's Platform Gears.
 Dexter Spring Co., Hulton, Pa. 74
 The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.
 Gormley Spring and Gear Co., Fostoria, O. 77
 The Gormley Patent Spring and Gear.
 Henry Spring Co., Winsted, Conn.
 The Henry Single-leaf Rib Spring.
 Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa. 61
 Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)
 Longstreth & Ayer Mfg. Co., Columbus, O. 57
 The L. & A. Adjustable Side-spring.
 Magner & Thomas Spring Co., Wellsville, N. Y. 78
 Improved Thomas Spring.
 C. M. Murch, Cincinnati, O. 73
 Spring and Gear.

Mulholland Spring Co., Dunkirk, N. Y.....	63
Mulholland Springs and Gears.	
Penn & Lee, Syracuse, N. Y.....	81
Springs of all kinds.	
Rice Spring & Carriage Co., Pittston, Pa....	67
Rice Carriage Springs.	
Wm. & Harvey Rowland, Frankford, Phila- delphia, Pa.....	64
Fine Springs from Swedish Stock. Also Iron and Steel.	
The Shuler Springs and Gears.	
D. W. Shuler, Amsterdam, N. Y.....	61
Geo. F. Thompson, Oshkosh, Wis.....	57
Thompson's Improved Climax Gear.	
Henry Timken, St. Louis, Mo.....	52, 75
The Timken Cross-Spring.	
Tomlinson Spring Co., Newark, N. J.....	70
Fine Springs and Axles.	
R. Tomlinson Spring and Axle Works, Bridgeport, Ct.....	50
Springs: Specialty, The Hamlin.	
Tuthill Spring Co., Chicago, Ill.....	69
Fine Springs, including Timken, Pennoyer, Stickle, Groot, Brewster, and other patent Springs.	
Whitney Spring Co., Poughkeepsie, N. Y..	61
The Whitney and Storm Side-bar Springs.	
United Rubber and Steel Spring Co., Platts- burgh, N. Y.....	69
C. R. & J. C. Wilson, Detroit, Mich.....	74
The Wilson Side-bar Cross-spring.	
Geo. White, Greenville, Pa.....	79
White's Buckboard Gears.	
Wood, Smith & Co., Fort Plain, N. Y.....	60
The American Standard Springs and Axles.	

TOOLS.

Jno. Bayliss, Stamford, Ct.....	80
Forge and Tuyere.	
Chambers, Bros. & Co., Philadelphia, Pa....	50
Bolt and Rivet Clippers.	
S. D. Kimbark, Chicago.....	68
All latest improvements in Tools and Machines.	
J. W. Manneer, Rochester, N. Y.....	69
Manneer's Bench Drill.	
Porter & Wooster, Boston, Mass.....	54
"Easy" Bolt Clipper.	

TRIMMERS' MATERIALS.

Active Manufacturing Co., Cincinnati, O....	83
Carriage Dashes. (See also Hardware.)	
American Solid Leather Button Co., Provi- dence, R. I.....	71
New Solid Leather Nails, Tacks and Tufting Buttons.	
American Tack Co., Fairhaven, Mass.....	69
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)	
Ashtabula Carriage Bow Co., Ashtabula, O.	76
Leather Covered Bow.	
Bridgeport Coach-Lace Co., Bridgeport, Conn.....	70
Coach Laces and Trimmings.	
Cleveland Dash Co., Cleveland, O.....	65
Carriage Dashes and Fenders.	
Cleveland Carriage Bow Co., Cleveland, O..	67
Leather-covered Carriage Bows.	
Cortland Box Loop Co.....	49
(See Hardware.)	
Crandal, Stone & Co., Binghamton, N. Y...	80
Carriage Trimmings.	
Dalton, Barton & Co., London, Eng.....	72
Carriage Laces and Trimmings.	
Durham & Wooster, New-Haven, Conn....	74
English Canopies	
C. Coles Dusenbury & Co., New-York....	80
Excelsior Top Co., Cortland, N. Y.....	49
Carriage Tops.	
Haight and Sovereign, Rockford, Ill.....	77
Shuman's Swivel and Rockford Neck Yokes.	
Hardt, Von Bernuth & Co., New-York City..	80
Carriage Cloths, etc.	
Harris Button-Hole Co., Lim., New-York..	66
Pat. Crimped Leather Knob Eyelets.	
Japanese Hair Mfg. Co., Jersey City, N. J..	58
Japanese Hair and Japanese Moss.	
S. D. Kimbark, Chicago.....	68
Cloths, Leather, etc., etc.	
Chas. P. Ketterer, New-York.....	71
Wagon Curtain Fastener.	
C. Z. Kroh & Bro., Toledo, O.....	62
Tops, Cushions, Backs, Falls, etc.	
Longstreth & Ayer Mfg. Co., Columbus, O..	57
Dashes, etc.	
Metal Stamping Co., 64 Reade-st., New-York,	68
Parker Carriage Goods Co., Cincinnati, O..	49
Carriage Trimmings in great variety.	
Peel & Elster, Springfield, O.....	65
"IXL" Dash Molding and Neck-yoke.	
F. J. Schmid, New-York.....	58
Hand-made Coach Laces, and all kinds of Trim- ming Materials.	
E. W. Scott, Wauregan, Ct.....	54
Scott's Whip Sockets and Fasteners.	

Ten Eick & Kent, New-York City.....	70
Carriage and Sleigh Materials of every descrip- tion.	
Topliff & Ely.....	59
See Hardware.	

VARNISHES, JAPANS, ETC.

Moses Bigelow & Co., Newark, N. J.....	65
Established 1845. Fine Coach and Car Varnish Manufacturers.	
Berry Bros., Detroit, Mich.....	48
Coach and Railroad Varnishes.	
John Babcock & Co., Boston, Mass.....	2d cover page
Billings, Taylor & Co., Cleveland, O.....	55
Coach and Car Colors and Varnishes.	
DeGolyer & Bro., Chicago, Ill.....	84
Fine Coach Varnishes.	
F. W. Devoe & Co., New-York.....	60
Carriage, Coach and Car Colors.	
Felton, Rau & Sibley, Philadelphia, Pa....	51
Wm. Harland & Son, Merton, Surrey,. England.....	2d cover page
On sale in America by first-class dealers in prin- cipal cities.	
Hildreth, Templeton & Co., New-York.....	2d cover page
Superfine Coach and Car Varnishes.	
King Varnish Co., Akron, O.....	46
Fine Coach Varnishes.	
Moller & Schumann, Brooklyn, N. Y.....	2d cover page
O'Brien Varnish Works, South Bend, Ind...	83
Parrott Varnish Co., Bridgeport, Ct.....	2d cover page
C. C. Reed & Co., New-York City.....	62
A. Smith & Sons, New-York City.....	64
Stimson & Co., Boston, Mass.....	53
Fine Coach and Car Varnishes.	
Valentine & Company, New-York.....	45
L. M. West, Rockford, Ill.....	58
Carriage-top Dressing.	

WHEELS AND WHEEL STOCK.

Bollenbacher & Sons, Bloomington, Ind....	51
Spokes.	
S. N. Brown & Co., Dayton, O.....	82
Superior Wheels, Hubs, Spokes, etc.	
Crane & McMahon, 38 Park Place, N. Y....	70
(Salesroom, New-York.) Spokes, Rims, etc., and Hickory, Oak and Ash Plank.	
Howard M. DuBois, Philadelphia, Pa. ...	49
Wheels, Hubs, Spokes, etc.	
Eberly Bros., Mechanicsburg, Pa.....	
Patent and Wood Hub Wheels and Wheel Stock of high grade.	
Hagerstown Spoke Works, Hagerstown, Md..	60
Hoopes, Bro. & Darlington, Limited, West Chester, Pa.....	76
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.	
V. G. Hundley, 79 Reade-st.,—97 Cham- bers-st. New-York.....	66
Second-growth Spokes and Hickory Plank.	
Phineas Jones & Co., Newark, N. J.....	54
Patent and Plain Wheels, Spokes, Hubs, etc.	
Lambertville Spoke Mfg. Co., Lambertville, N. J.....	70
Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.	
Longstreth & Ayer Mfg. Co.....	57
See Springs and Gears.	
Philip Lebzelter, & Co., Lim., Lancaster, Pa..	70
Fine Wheels and Wheel Material.	
New-Haven Wheel Co., New-Haven, Ct....	65
Wheels of all styles. Specialty made of using Second-growth Eastern Timber.	
New-York Sarven Wheel Co., New-York... 62	
Branch of Royer Wheel Co., Cincinnati, O., which see.	
Rochester Wheel Co., Rochester, N. Y.....	53
Wheels, Hubs, Spokes, Rims.	
Royer Wheel Co., Cincinnati, O.....	62
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.	
F. Seidle, Mechanicsburg, Pa.....	60
Wheels and Materials. Shafts, Carriage Poles, Bows, Sleigh Runners, etc. Specialty: The Phoenix Wheel.	
Springer, Morley & Gause Co., Wilmington, Del.,	
Wheels and Wheel Material.	
Winch & Sons, Bryant, Ind.....	55
White Elm Hub Blocks.	

WOODWORK AND MISCELLANEOUS.

Combination Seat Co., South B.nd, Ind....	72
Perkins' Patent Veneer Seats.	
Excelsior Wood Seat Co., Columbus, O....	51
Patent Seat for Carriages and Wagons.	
E. F. French, New-York.....	16
Built-up-wood Roofs.	

Herring & Co., New-York City.....	3d cover page
Herring's Champion Safes.	
S. D. Kimbark, Chicago.....	68
Burr Patent Bodies. Carriage and Wagon Wood Material.	
B. Miller, Paola, Kan.....	49
Miller's Adjustable Horse.	
J. H. Miller, Mansfield, O.....	55
Wanted.	
Swaine & Adeney, London, Eng.....	56
Whip Manufacturers.	
Judson L. Thomson, Syracuse, N. Y.....	66
Security Rein Holder.	

Labor Bureau.

SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," in its May, June and July issues, free of charge to all carriage mechanics seeking employment, and also to all employers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

"THE HUB," 323 Pearl-street.
New-York, April 1, 1884.

Employer's Department.

—WANTED.—Superintendent competent to manage body department of large cutter and-sleigh factory. Must understand swell and Portland work. Call or write. O. F. Hall, Sec'y, Detroit, Mich.

Workmen's Department.

—SITUATION WANTED.—As helper in a carriage shop. Six years' experience. References given. Address W. H. Woodruff, Box 1511, Port Jervis, N. Y.

—WANTED.—Position by an expert carriage and sign painter, who is temperate and reliable. Artistic striping, lettering, monograms, etc. Address D. E. LANZIE, Alexandria, Va.

—WANTED.—A carriage painter, good striper and finisher. All kinds of work. Single man preferred. Steady job and good wages. Apply or address immediately, A. D. Lord, Scranton, Pa.

—WANTED.—Situation by a first-class carriage painter. Can do striping, finishing, lettering, etc. Am a married man and would like a steady job. Address D. J. Devine, Republic, Seneca Co., Ohio.

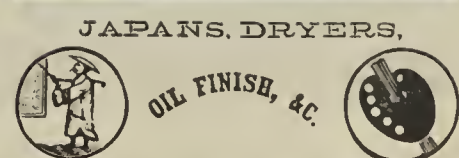
—SITUATION WANTED.—A first-class coach painter capable of taking charge of shop, a good body finisher and general workman. Would like to secure a position as such with responsible parties. Address A. P. Daire, 75 Summer-st., Trenton, N. J.

MISCELLANEOUS.

—CARRIAGE MANUFACTORY FOR SALE.—The Kuhn & Turpin Carriage business, stock, and finished work for sale. Also will rent or sell the factory. Apply to Childress & Titcomb, Executors, Columbia, Tenn.

—TO CARRIAGE MAKERS.—Those desirous of obtaining first-class mechanics in the different branches should apply to Carriage Makers' Guild, of Brooklyn, 123 Smith-street, Box E. and G., Brooklyn, N. Y. B. Murrey, Sec.

—FOR SALE.—A BARGAIN.—The oldest and best established buggy and wagon manufactory in the South. The whole, or a half interest will be sold cheap to one understanding the management and carrying on of the business. Best of references given and required. Address HODGSON BROS., Athens, Ga.



Correspondence Solicited.



We have in stock the **Finest and Largest Variety** of Transfer Ornaments for Buggies, Carriages, Sleighs, Wagons, etc. Catalogue and Price-list mailed free on application. Our Ornaments being in use in more than 20,000 Factories, in different parts of the world, is certainly a sufficient guarantee of their **superiority and excellent quality.**
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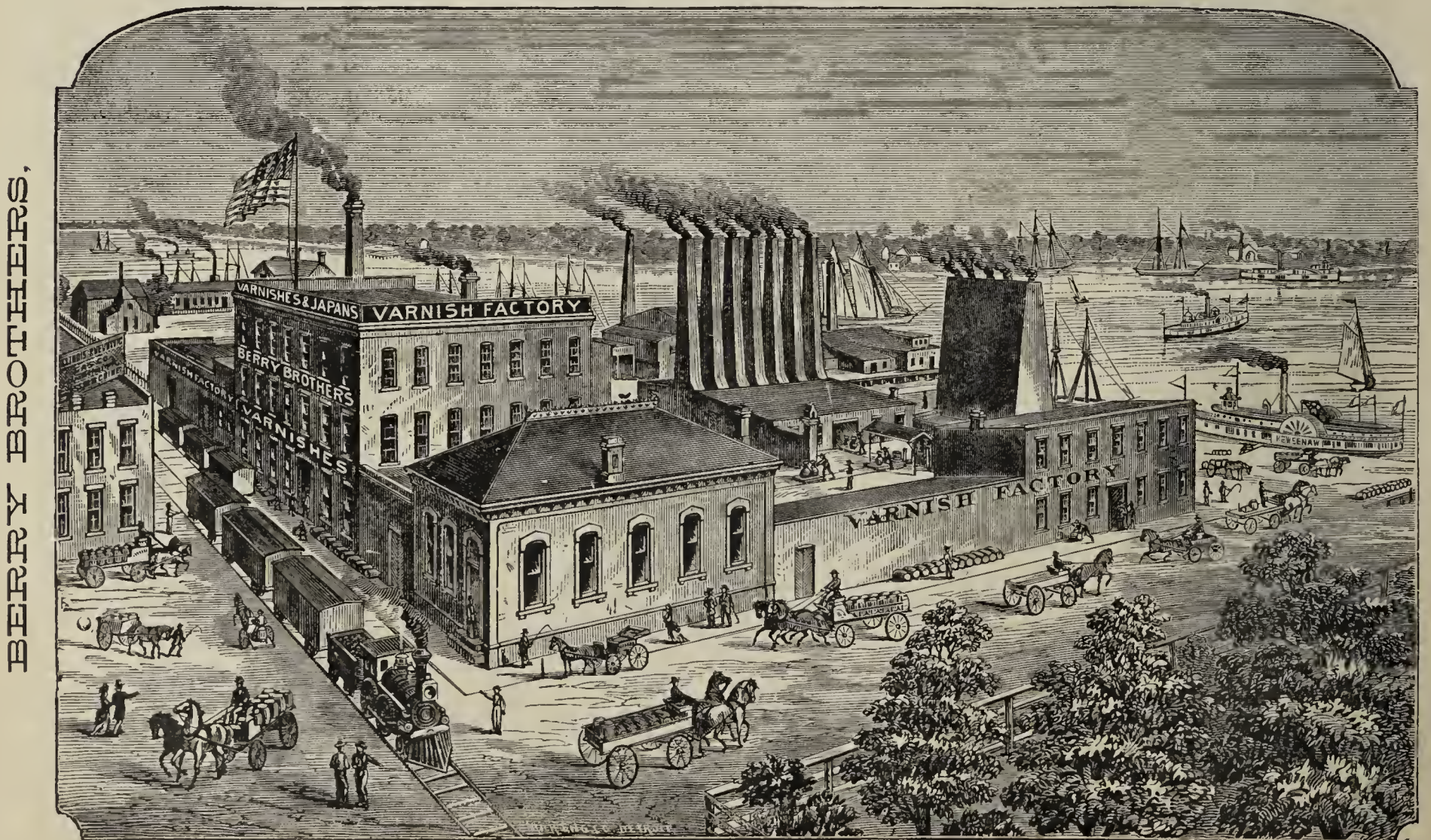
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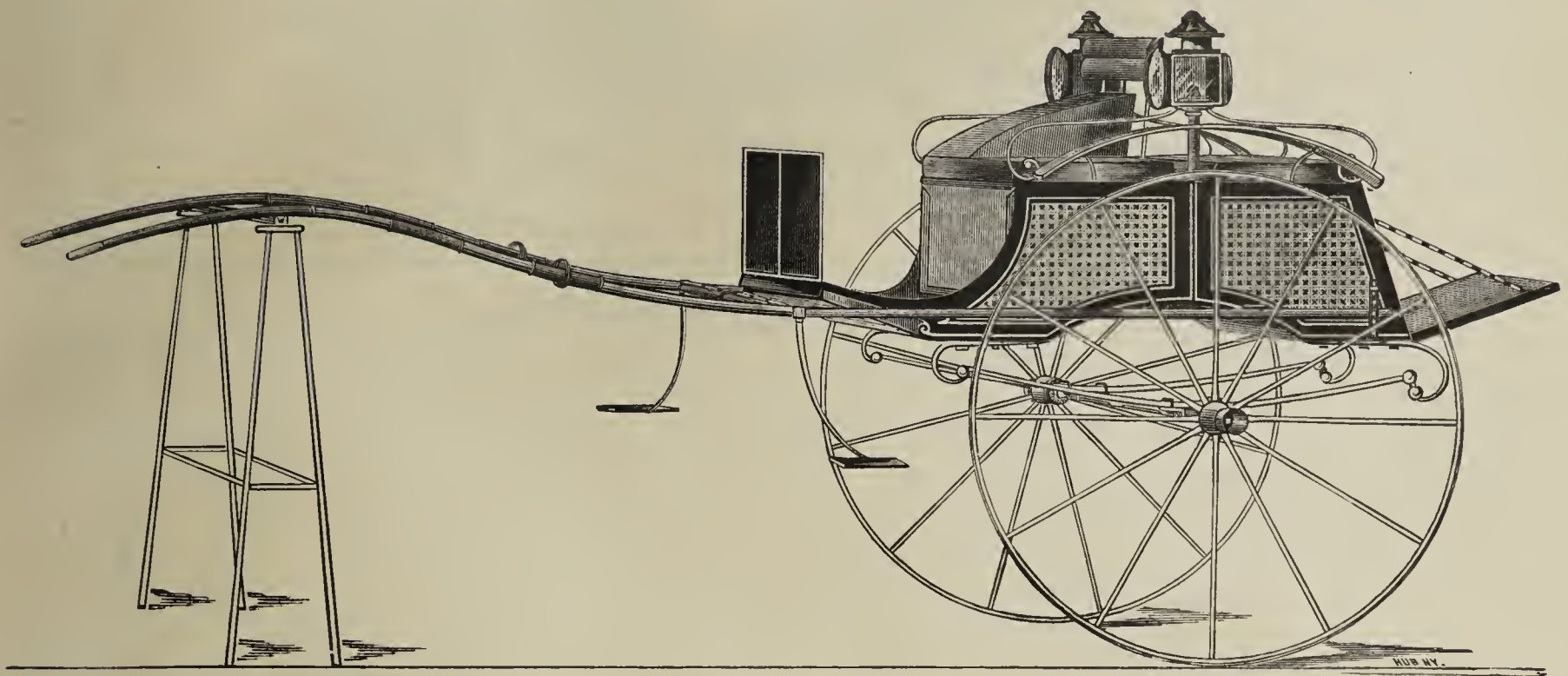


Plate No. 9. DOS-A-DOS CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 94.

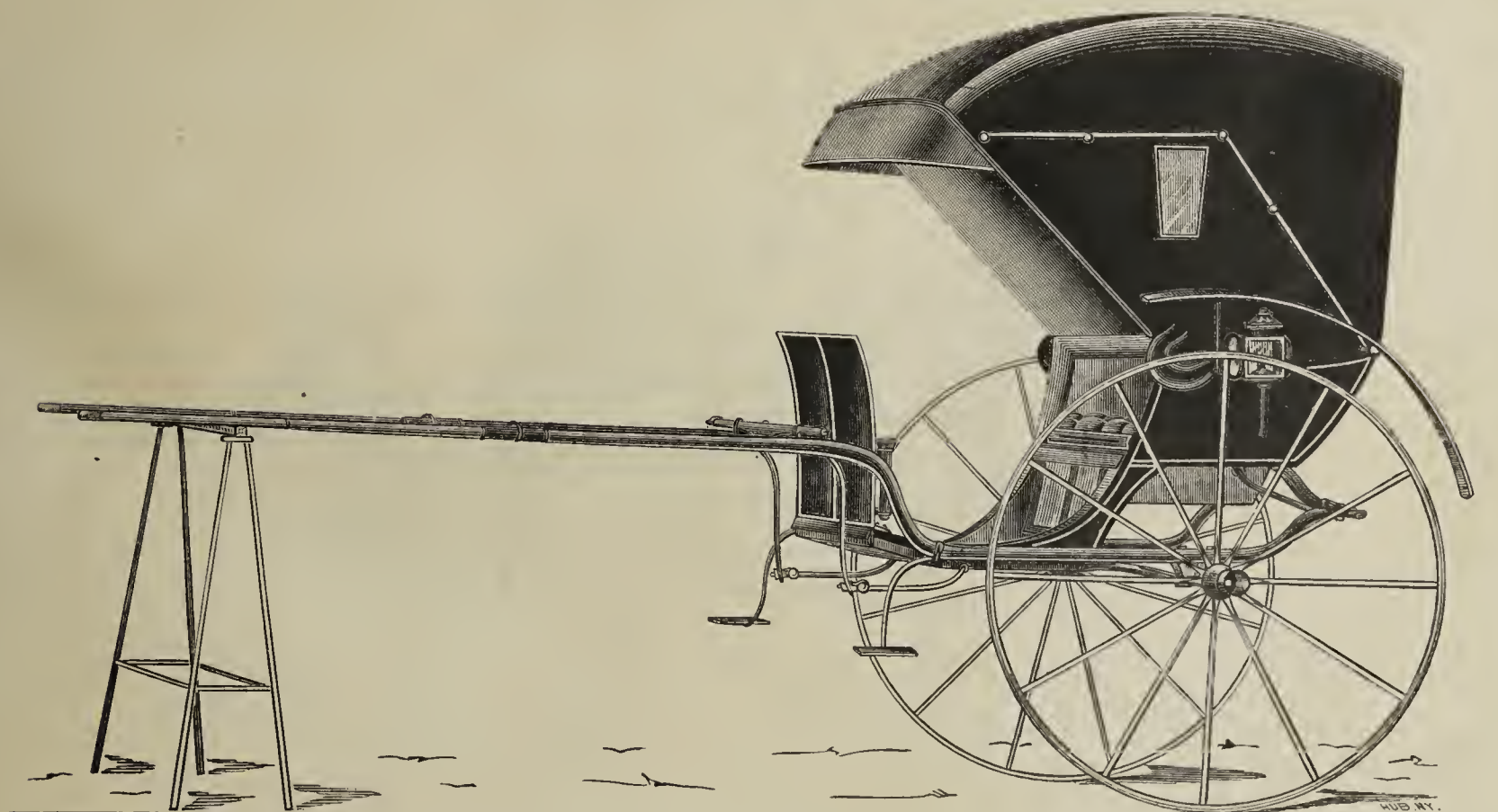


Plate No. 10. ENGLISH QUARTER CART, WITH CLOSE TOP.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 94.

LIP 1
OF THE
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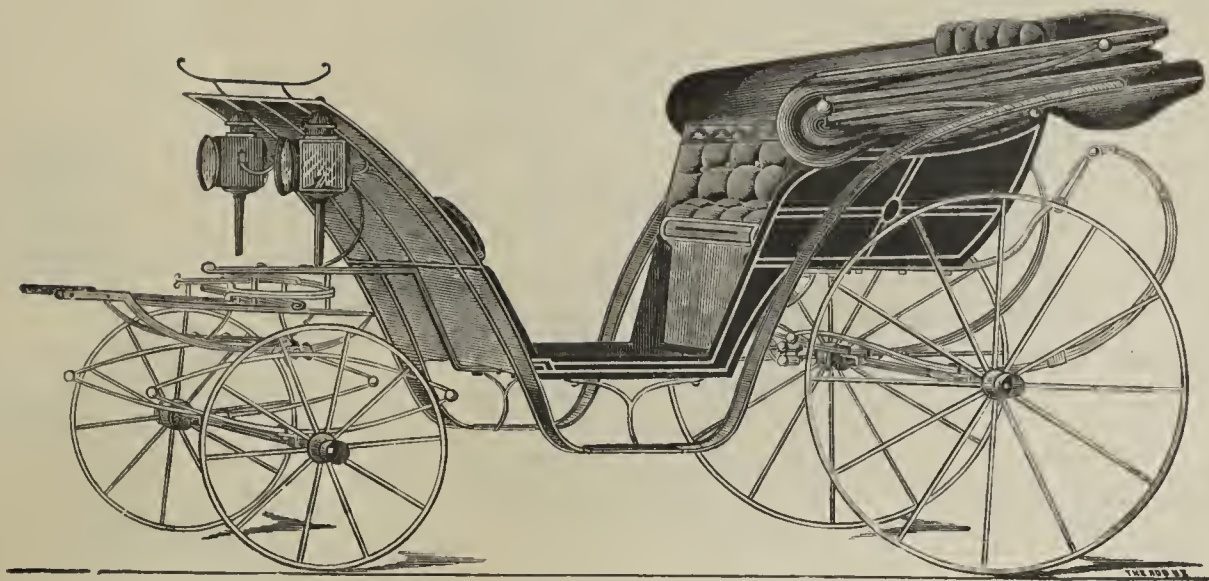


Plate No. 11. LADIES' PHAETON ON FIVE SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 95.

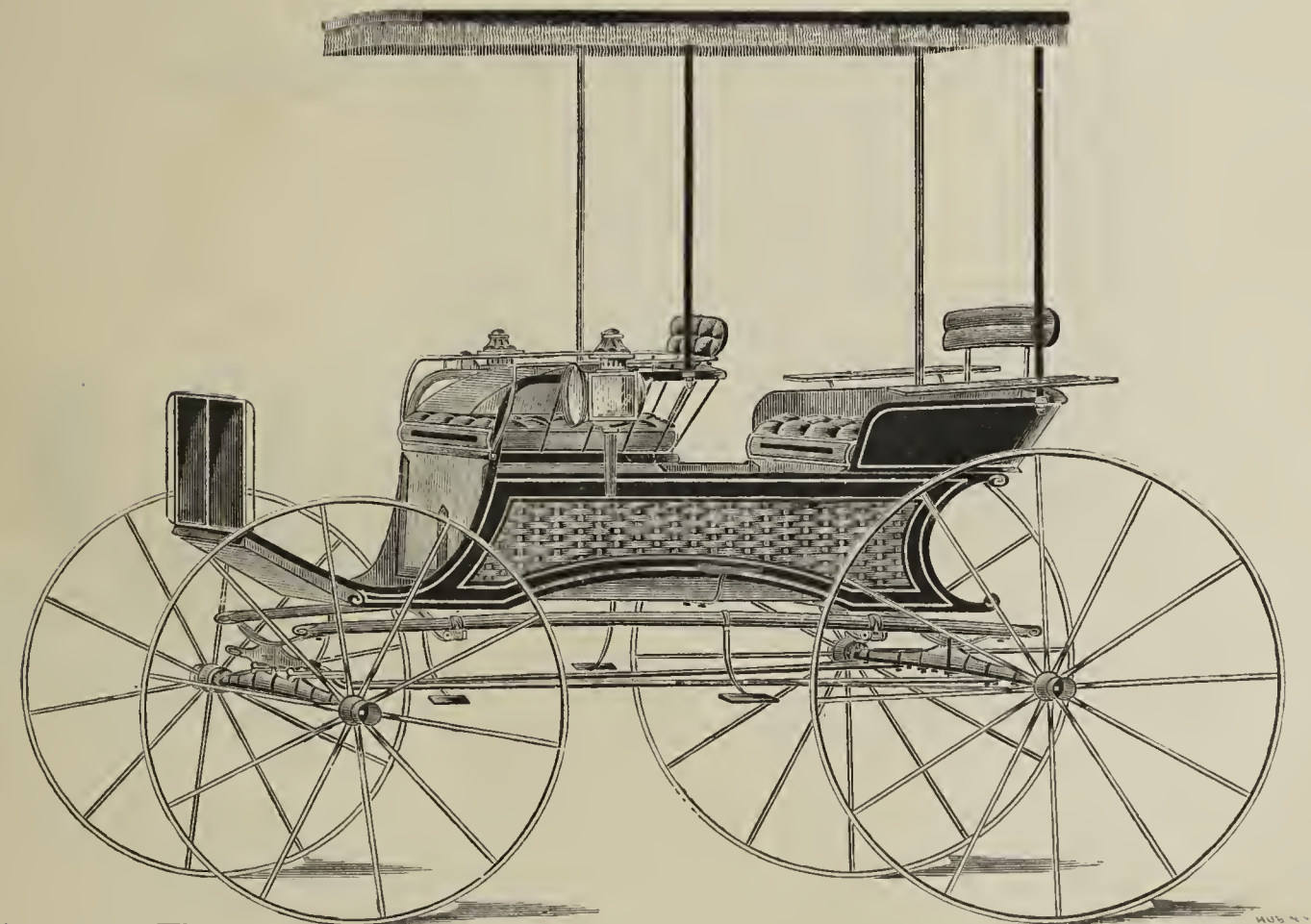


Plate No. 12. FOUR-PASSENGER C-SWEEP PHAETON, WITH CANOPY TOP.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 95.

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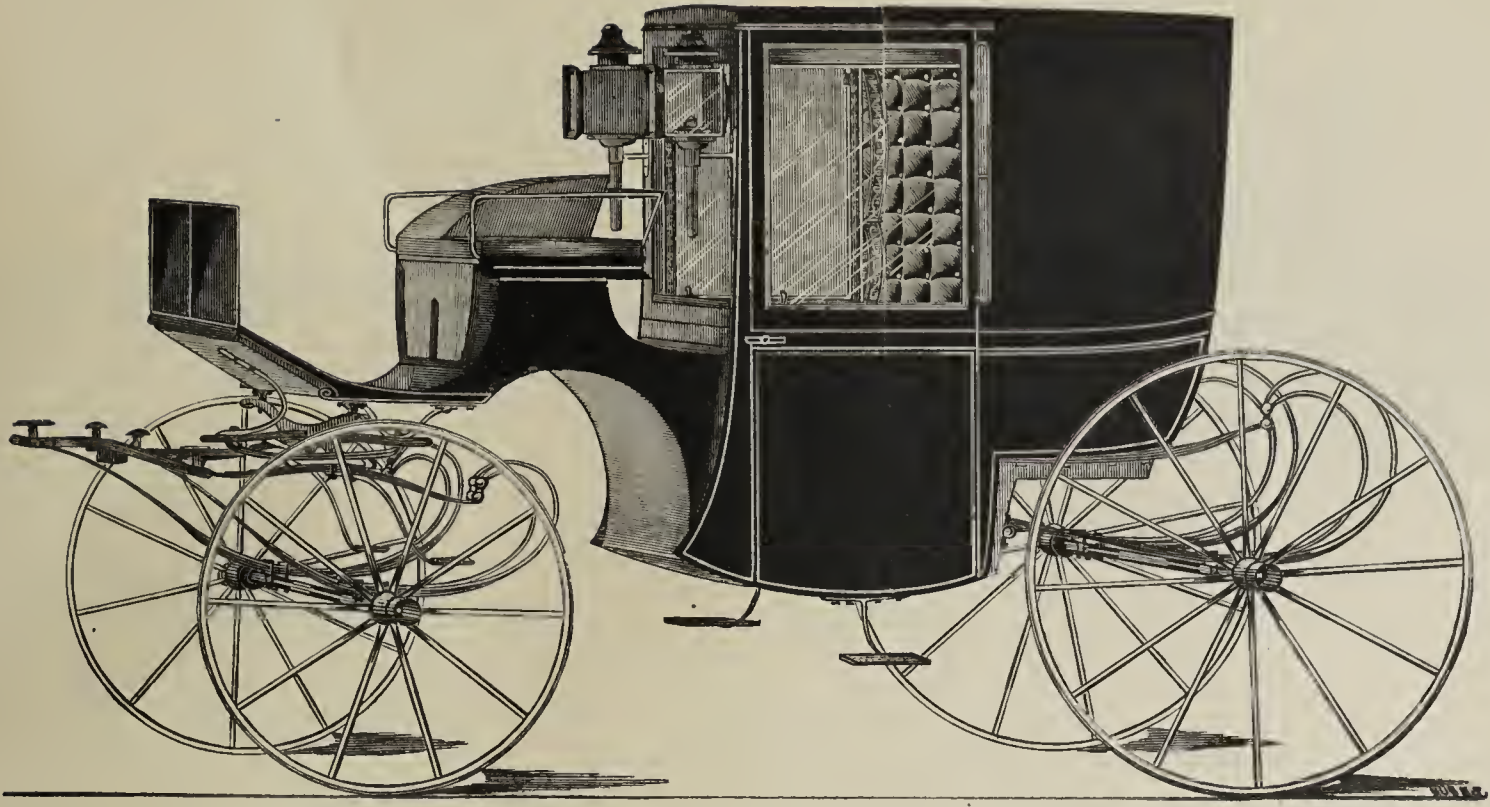


Plate No. 13. MEDIUM-SIZE BROUCHAM, WITH NOVEL SUSPENSION.—Scale, one-half Inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 95.

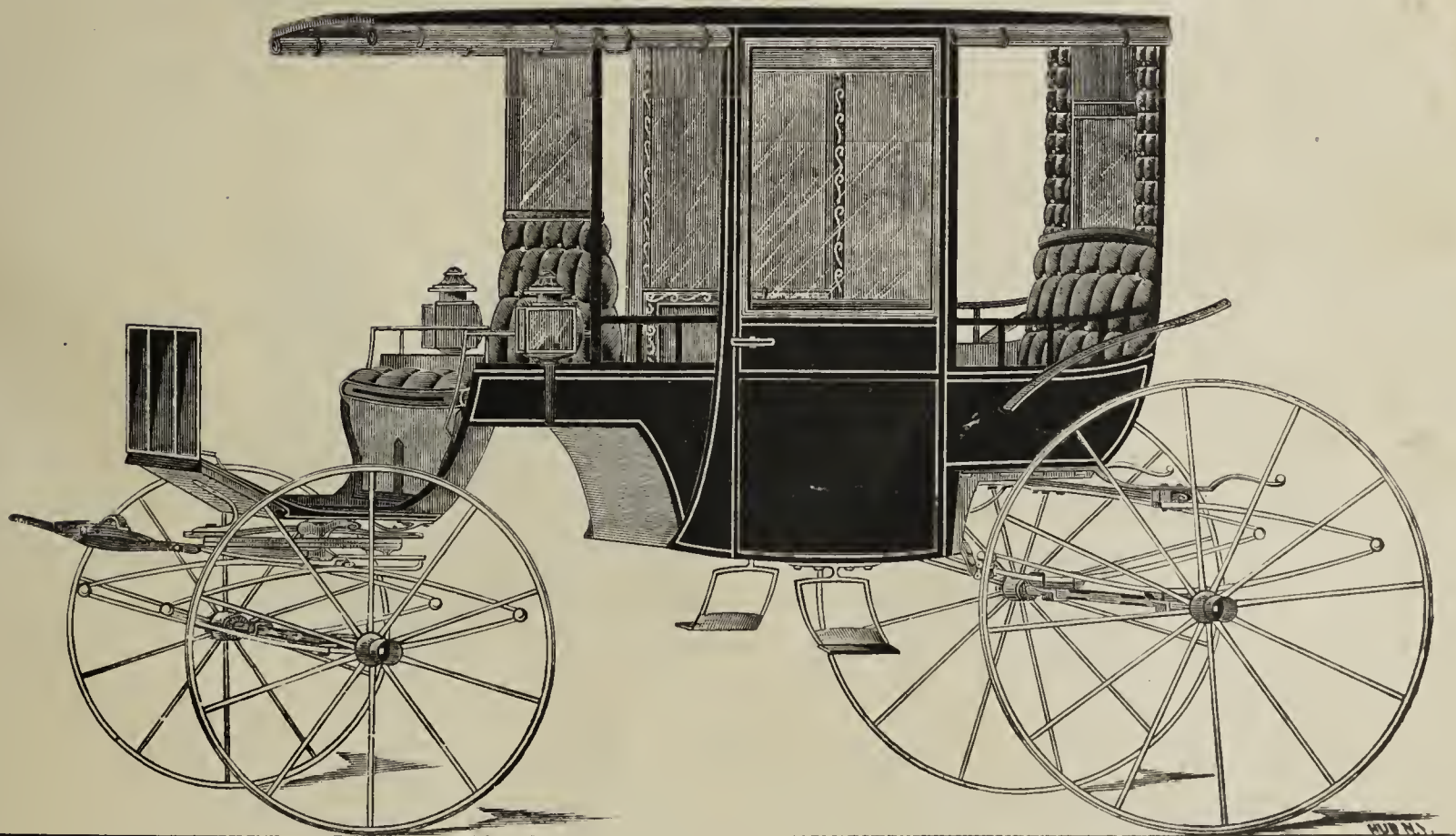


Plate No. 14. SIX-PASSENGER ROCKAWAY, WITH CURTAIN QUARTERS.—Scale, one-half Inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 96.

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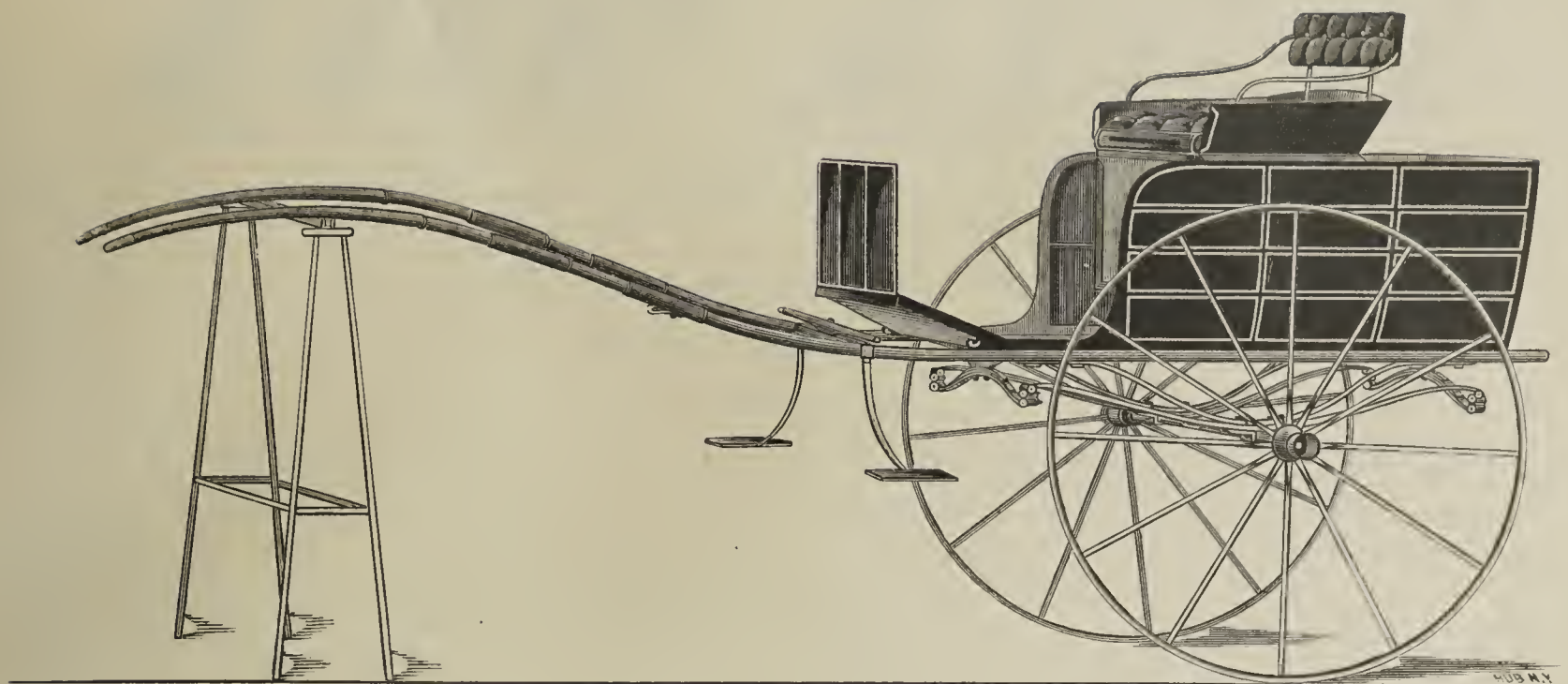


Plate No. 15. NEW-YORK BUSINESS CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 96.



Plate No. 16. GENERAL UTILITY WAGON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 96.

The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, MAY 1, 1884.

No. 2.

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Élysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.

"A DASH THROUGH THE PARK."

(See Illustrated Sheet facing title-page of this number.)

ONLY one Colored Plate accompanies this number of *The Hub*. As a substitute for the second, we take pleasure in presenting what we think will be considered a still greater attraction, namely: a double-page illustration by Mr. Gray-Parker, entitled "A Dash through the Park."

This road scene, introducing a pair-horse buggy, has been adapted by the artist to the text of a well-remembered extract from the eloquent address by Hon. A. Loudon Snowden, delivered before the Carriage Builders' National Association on the occasion of its annual banquet at St. George's Hall, Philadelphia, in October, 1882.

Artist and orator show lively sympathy in their treatment of the subject; and we present together on the same sheet the linear and verbal expressions of both, as worthy complements one of the other.

The hearty appreciation shown by our readers in the drawings by Mr. Gray-Parker already published in *The Hub*, leads us to present in this same number a second example of his lively humor and skilled hand, in the illustration "Following the Hounds," which forms the feature of our "Dinner Hour" department this month. See page 116.

TWENTY-EIGHT COMPETITORS FOR THE HUB'S PRIZES.

The Hub's offer of prizes, to the amount of \$220, for working drawings and essays on the subject of "Physicians' Phaetons and Buggies," as made public in the January, February, March and

April numbers of *The Hub*, and also in the New-Year's edition of the *Hub Almanac Quarterly*, aroused unwonted interest, and has called out an array of talent as gratifying for quality as for quantity.

The period named for receiving the offerings of competitors terminated on April 15th, but three days of grace were added in order to allow for any delays that might occur in the mails. On Friday, April 18th, the teachers and pupils of the Technical School, upon assembling in the evening, found twenty-two working drawings exhibited on the walls of the class-room, all of which had been entered in competition for the prizes named by us in Classes I and II. No names or addresses were attached, these being contained in sealed envelopes, to be kept under lock and key until after the prizes have been awarded.

In addition to the above-named working drawings, there were also received six entries under Classes III to IX, inclusive, for best designs for ironing and trimming Physicians' Phaetons, and best practical hints treating upon improvements in the construction of the same.

The above drawings and essays, together with all correspondence relating thereto, are now in possession of the Committee of Awards, consisting of Messrs. Gribbon, Polya and Konrad, the instructors in charge of the Technical School, whose report we hope to make public in our next number.

CONTRIBUTIONS TO THE HUB'S NEW LIBRARY.

"*Décoration Héraldique de la Voiture*," or "Heraldic Decoration of Carriages," by Callot, has just been issued in attractive pamphlet form by the publishers of *Le Peintre en Voitures*, 91 Champs-Élysées, Paris, France. It comprises 64 pages, and is illustrated by 143 photo-engravings. The price is 5 francs, or \$1.00; and it ought to prove well worth this small sum to all heraldic painters.

"*Historical Essay on the Art of Bookbinding*," by H. P. DuBois, American editor of *Le Livre*, published by the Bradstreet Press, of New-York, is an exquisite brochure of 42 pages, bound in imitation vellum, which not only contains instructive reading matter, but of itself forms an eminent example of some of the principles it enunciates. Its title-page is particularly noteworthy for simplicity and taste in composition.

THE FIRST BROUGHAM.

THE first Brougham was built in 1838 by Mr. Robinson (a few years later Robinson & Cook), for Lord Brougham. It was taken out on a five years' job from May 15th in that year.

It had straight fore-pillars, carved brackets and footboard, and a narrow dash. It was hung upon elliptic springs and Charles Collinge's patent axles. The painting was olive-green, picked out black and fine-lined yellow. The lining was of blue cloth and taborette. The lamps were fully brass-mounted, and the bead on the body was polished brass. The crest and coronet were upon the panels of the doors. In the following year (1839) the hind elliptic springs were taken away, and in their stead were fixed horizontal side-springs, cross-spring, and top scroll-springs, with swinging checks.

In 1840, Lord Brougham had a new carriage exactly similar to the first, except that it was a trifle wider, and was hung upon elliptic springs. This one had a pole and bar, whilst the first had shafts only.

It may be interesting to know that in the books of the firm both these carriages were called "Drotczcha Chariots," but in 1845 several customers were charged with "Brougham Chariots," and a year or two later as many more with "Broughams."

NOTE.—The above item of historical interest is reprinted from a recent number of Kemp's *London Carriage Builders' Gazette*. We wish the editor of that periodical, or the correspondent who furnished the facts, might present drawings of the two vehicles referred to, as they could not fail to prove both interesting and instructive.—Ed.



DESCRIPTIONS OF FASHION PLATES.

SIDE-BAR SPEEDING WAGON.

(See Colored Plate No. XL, in this number.)

IN this month's Colored Plate we present a Square-box Buggy with stick-seat, and without top. The changes in outline in such square-box patterns are limited, but it has long been the aim of manufacturers of first-class light work to reduce the weight to a minimum. Several devices have been invented to reduce the sizes of the axle-beds and side-bars, including, for instance, the insertion of a thin steel plate edgewise, as patented by Messrs. J. B. Brewster & Co., of this city.

In most cases end-springs are dispensed with on such no-top wagons, and also on many top wagons, the body springs alone being deemed sufficient. If no end-springs are used, the side-bars must rest in front on the head-block, and behind on the axle-bed or on a bolster. We prefer the latter method, as it makes a better finish, and harmonizes better with the front gear. If there is no bolster applied to the hind axle-bed, the latter, in order to bring the side-bars on a horizontal line, will have to be made of considerable depth, and sometimes more than is consistent with a good effect.

The two perches, instead of being framed into the head-block, as has been the general rule heretofore, are now often fitted into two iron stays, which latter are welded solid to the bottom plate of the head-block, and form a prong at the back end for the reception of the perches. We consider this a neat and strong method, and beneficial to the head-block, as it prevents the checking of the head-block at the mortises, a defect often complained of, which certainly detracts from the good appearance of the job.

The material entering into the construction of the body is reduced to a minimum. The panels are $\frac{3}{8}$ in. at the bottom, and lightened at the top edge to about $\frac{1}{4}$ in. The front bottom is $\frac{3}{8}$ in., while the back bottom is only $\frac{5}{16}$ in. The bottom sills are made $1\frac{1}{4}$ in. square. The seat-frame is $\frac{5}{8}$ in. thick, and of sufficient width to be screwed to the cross pieces of the body. The seat bottom forms a lid, and is made of two pieces, $\frac{1}{4}$ in. thick. Two slats run crosswise, and the boards are fastened in such a manner as to leave an open joint between the two boards. The sticks are either turned or made in a V-shape, the latter being adopted for our drawing.

The painting should be executed with the greatest painstaking, and in the case of a first-class job, the inside should be painted with nearly the same care as the outside.

Dimensions.—Width of body on top, 22 in.; ditto bottom, $21\frac{1}{2}$ in.; ditto seat on top, $31\frac{1}{2}$ in.; ditto bottom, $25\frac{1}{4}$ in. Height of wheels, front, 3 ft. 8 in.; and hind, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{3}{8}$ in. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{1}{8}$ in. Hubs, $3\frac{1}{2}$ in. diameter. Front bands, $1\frac{7}{8}$ in.; and back, $2\frac{3}{8}$ in. diameter. Length of front bands, $1\frac{1}{2}$ in. Length of hubs, 6 in. Tire, $\frac{3}{4} \times \frac{3}{8}$ in., round edge steel.

The front body-spring is $25\frac{1}{4}$ in., from out to out, with 2 in. arch over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, two, namely: first No. 3, and the other No. 4 steel. The hind spring is of the same length as the front spring, with $2\frac{1}{4}$ in. arch over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, namely: the first No. 3, and the other two No. 4 steel. Axles, $\frac{3}{4}$ in., steel. Track, 4 ft. 2 in., from out to out.

Finish.—Painting of the body, black. Running-gear, light yellow, striped with two fine lines of black. Trimming, light English corduroy. The top of the cushion is made up in the biscuit pattern. The color of the carpet should match that of the trimming. Mountings, brass.

DOS-A-DOS CART.

(See Fashion Plate No. 9.)

CARTS with seats placed back to back, notwithstanding the prediction of some builders, are steadily gaining in favor, and several factories make their manufacture a specialty. Numerous improved springs and contrivances for reducing the so-called "horse motion" to a minimum, have been introduced, and in several instances with successful results.

Proper balancing is unquestionably a most important consideration in all carts. We have seen Village Carts, speeding along on an even road, wherein the jolting motion was painful to behold, and riding must have been anything but pleasant; while other carts of the same pattern, though perhaps by other makers, exhibited none of the same jolting motion. In our judgment, one leading cause of the jolting motion of such carts must be referred to improper placing of the axle. In recent conversation with a member of a large Western firm making the building of carts a specialty, regarding the proper balancing of carts, he remarked that, in the case of all Two-passenger Carts, he was accustomed to place the axle one third back from the front of the seat-frame, wherever that might be, and he found this simple rule to give satisfactory results. Another, also engaged largely in the manufacture of two-wheelers, says that he employs a frame which is fastened on top of the running-gear; and the body having been screwed to this frame, the cart is then loaded with the number of passengers it is intended to carry, and the body is then adjusted until the proper place for the axle is found. This experiment is of course only necessary for one cart, in case a number are made of the same pattern.

To obtain the most favorable results, the seats or the body should preferably be made adjustable, for even if the cart is properly balanced in the shop, the different weights of persons occupying the cart at different times will of course cause a displacement of the center of gravity; and numerous devices have been invented to thus adjust either the seat or the body.

Our drawing shows an iron rail on the sides, in place of wooden sides for the seat, with an upright in the center, and swept at the ends. The seat-boards are 16 in. deep, which will leave sufficient space to slide them backward and forward as emergency requires. The seats are even with the top of the body, and rest on a slide rail. The bottom sill is made of one piece, and is plated on the inside. Three uprights are framed to the bottomside. The top-rail is made of sufficient depth to permit the insertion of a rabbet the depth of the seat-frame, and about $\frac{1}{2}$ in. from the outside, which will prevent the seat-frame from rubbing against the panel. The sides are finished with imitation cane-work, or slat-work, either being frequently used at the present time.

The shafts work in a pivot at the front. To raise or lower the ends of the shafts to suit the size of the horse, we have adopted the contrivance described in the Smith Department of the December *Hub*, 1883, by which the shafts can be adjusted to any desired height. The position of the shafts on our drawing is calculated for a 16-hand horse.

Dimensions.—Width of body on top, 39 in., and at bottom, $34\frac{1}{2}$ in. Height of wheels, 4 ft. 5 in., without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $6\frac{1}{2}$ in. diameter. Front bands, $4\frac{7}{8}$ in.; and back, $5\frac{3}{8}$ in. diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{3}{8} \times \frac{7}{16}$ in., round edge steel.

The springs are 49 in. long, from out to out, with 4 in. arch over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Axle, $1\frac{3}{8}$ in., Collinge patent. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of body, black; and the side panels and tail-gate are finished with imitation cane-work, as per drawing. Running-gear, dark green, with a broad stripe and two fine lines of carmine. Trimming, dark green goatskin. The cushion tops are laid off in large biscuits. Carpet, green, with large figures. Mountings, silver.

ENGLISH-QUARTER CART WITH CLOSE TOP.

(See Fashion Plate No. 10.)

THIS cart will make an attractive turn-out if fitted in proper style, with lamps and wings. If preferred, the wings could be readily dispensed with on such a cart, having a close top, but as the cost of these wings is not extravagant, and the appearance of the vehicle is thereby much enhanced, we advise their use. A top with roll-up side curtains would change this into a desirable vehicle for pleasure driving.

The suspension of the body, as illustrated, is accomplished by the coil springs manufactured by the Rice Spring and Carriage Co., of Pittston, Pa., a detailed description of which will be found in our advertising department.

The peculiar shape of the shafts shown is demanded, so as not to interfere with ingress or egress. The shafts rest on a block, and are clipped together with the block to the axle. A swept bent bar connects the shafts at the back ends, and they are clipped together with a straight bar at the front of the dash. The lever projecting out of the coil is connected with the shafts, back and front, by means of an elongated shackle. The springs themselves are hidden from sight. An opening is made into the rocker, and the springs are fastened on the inside of the body. A considerable number of these carts, with the Rice springs attached, have recently built by Dann Bros. & Co., of New-Haven, Conn., and have proved highly satisfactory.

Dimensions.—Width of body on top, in center, 42 in.; ditto at back on top, 38 in.; ditto at the bottom, 35 in. Turn-under, 5 in. Rocker-plate, $1\frac{3}{4} \times \frac{5}{16}$ in., fastened with $1\frac{1}{4}$ in. No. 14 screws. Wheels, 4 ft., without the tire. Depth of rims, $1\frac{5}{16}$ in. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $4\frac{3}{4}$ in. diameter. Front bands, $3\frac{3}{8}$ in., and back, 4 in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1\frac{1}{8} \times \frac{1}{4}$ in., round edge steel. Axle, $1\frac{1}{4}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body panels, dark green; and moldings black, edged with a fine line of light green. Running-gear, dark green, striped with two stout lines of black at a distance. Trimming, green morocco for the back and cushion, and cloth of the same color for the side quarters, fall and head-lining. The top of the cushion is laid out in large biscuits, while the sides and back are plain, having a roll around the edge. A cloth raiser, 1 in. wide, is made around the outer edge of the fall. Carpet, green. Mountings, silver.

LADIES' PHAETON, ON FIVE SPRINGS.

(See Fashion Plate No. 11.)

THE original vehicle from which this attractive design has been reproduced, was built by Mr. Wm. D. Gardner, of Philadelphia, the sketches of which were furnished by Mr. R. H. Lee, foreman of Mr. Gardner's smith-shop. It embraces a number of important new features, especially in its ironwork, which fact has led us to prepare a working draft, which will appear in our next number.

The body is tastefully designed and well proportioned. It has considerable turn-under of the concavo-convex shape, the arm-rail and the middle pillar forming a sharp corner at the top, while the molding is swept as shown, thus giving the sides a better appearance. The rockers are made of four pieces. The bottom cross-bar at the front end of the body is swept backward $1\frac{1}{2}$ in., to give the wheels sufficient room to turn. The middle pillar can be made of either one or two pieces, the former method being preferable, as it produces only one short joint at the connection of the pillar with the back bottomside. The moldings are all worked on. The back bottomside and corner-pillar are made of one bent piece. The back cross-bar, back rail, front bar and back panel are put together at the same time. The side panel is then inserted in the bent corner-pillar. The middle pillar and front bottomside are secured next, and the arm-rail last. There are different methods in use, but we consider it best to let the panel extend to the front of the pillar, and to the top of the arm-rail; or, in other words, we prefer not putting the panel at those places into the groove. This process will simplify the construction. The whole frame-work can then be put together first, and then the panel. The molding on the arm-rail and pillar is then glued on.

We confine the following list of dimensions to the body only, as the measurements for the running-gear will appear in detail in connection with the working draft to appear in our next number.

Dimensions.—Width of body in the middle, at the top of the arm-rail, 45 in.; ditto at the back, on top of the arm-rail, 41 in.; ditto at the back cross-bar, 38 in.; ditto at the extreme front, 34 in. Turn-under, $5\frac{1}{2}$ in. Rocker-plates, $2 \times \frac{3}{8}$ in. steel, fastened with $1\frac{1}{2}$ in. No. 16 screws.

Finish.—Painting of the body panels, dark green; and moldings black, with a fine line of carmine. Running-gear, carmine, striped with two medium lines of black. Trimming, green goatskin, of best quality, for the back and cushions; and cloth for the quarters and head-lining. Broad-lace of an elaborate pattern may be applied around the edges of the fall and arm-rail. Carpet, green. Mountings, silver.

FOUR-PASSENGER C-SWEEP PHAETON, WITH CANOPY TOP.

(See Fashion Plate No. 12.)

SEVERAL noteworthy changes from current styles will be observed on this phaeton. The changes introduced in the outlines of the body are intended to give it a lighter appearance, without detracting from its good effect.

Instead of the customary stick-seat at the rear, a panel is substituted, which is made lower than the ordinary stick-seat, and a molding is worked around the top edge. This seat, like the usual stick-seat, has round corners.

The back corner-pillar of the body has the C-sweep, terminating in a scroll at the top and bottom. The bottom sill is not straight, but is swept upward 1 in. The panel having a curve, as indicated, will cause the rocker to form a recess. The rocker, if desired, can be so made as to follow the sweep of the panel. This, however, would somewhat interfere with the foot-room of passengers occupying the hind seat.

We have introduced on the side panels an imitation of basket-work, which should be painted in a different color from the body to appear best. For better ingress to the hind seat, a double step is necessary. The

upper step is provided with a shield, to protect the panel from being bruised when entering. The double step will not be necessary if there is a split seat in front; but, in the latter case, the canopy top must be dispensed with. If a split seat and a canopy top are both demanded, then a double step, as indicated on the drawing, will be found necessary. The body can be hung on either the Brewster or Timken spring.

Dimensions.—Width of body on top, 31 in.; ditto bottom, $28\frac{1}{2}$ in.; ditto top of front seat, 40 in.; ditto bottom, 34 in.; ditto hind seat on top, 40 in.; ditto bottom, $34\frac{1}{2}$ in. Height of front wheels, 41 in.; and hind, 46 in., without tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, 4 in. diameter. The front bands are $2\frac{3}{4}$ in., and back, $3\frac{1}{4}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{16}$ in., round edge steel.

The length of the front end-spring is 33 in. between the outside of the side-bars, with $2\frac{1}{2}$ in. arch over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next No. 3, and the last two No. 4 steel. The hind end spring is of the same length as the front one, with $2\frac{3}{4}$ in. arch over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. The front body spring is 33 in. long, with 3 in. arch over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. The hind body spring is of the same length as the front spring, with $3\frac{1}{4}$ in. arch. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. Axles, 1 in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body, black. Running-gear, carmine, striped with two light stripes of black. Trimming, blue cloth. Carpet, blue, with black figures. Mountings, silver.

MEDIUM-SIZE BROUGHAM WITH NOVEL SUSPENSION.

(See Fashion Plate No. 13.)

THE variations possible in the outlines of Broughams have been limited since the almost universal adoption of angular lines. For several years past a desire has been manifested to introduce some decided changes, and the developments of last year seemed to point toward the revival of the curved line, and the "Barker quarter;" but experiments in that direction met with only partial success, and have practically been abandoned for the present by leading builders both here and abroad.

The body represented in our present Fashion Plate is one of the standard styles. The lower part of the back quarter is made of one bent piece. The upper section of the back pillar is spliced to the bent piece. The joint at the back pillar is to be placed in such a position as to be covered by the back panel. The side of the front part or the boot is made of five pieces, namely: the two rocker-pieces, two short pillars or uprights, and one short bar connecting the two uprights. In some shops each side of the boot is made of one piece only, being sawed out of an ash board, and being made not thicker than 1 in. when dressed. This process gives less work to the body-maker, but requires a board of considerable width. Making each side of the boot of one piece is, we are informed, the general rule in England, but apparently does not meet with great favor in this country. There is no other vehicle so subject as the Brougham to complaints on the score of rattling or rumbling. Much has been said and written about this topic, but without settling the problem satisfactorily; but it is evident that too much care cannot be taken in fitting the glass frames, and the locks also should be fitted with the greatest accuracy, especially the catch-bolt. Neglect in properly fitting this bolt has caused frequent and serious annoyance; and, in more than one case, has been the sole cause of rattling complained of. Lock-makers should therefore give this part of the lock special attention.

The most striking novelty of the design shown in our Fashion Plate consists in the suspension of the body on a new system of springs, resembling in their outline those of C-springs, or double C-springs. Mr. Chauncey M. Murch, of Cincinnati, O., is the inventor and patentee of this new combination. We have not had an opportunity to personally examine its riding qualities, but Mr. Murch claims that the springs are not only simple in construction, and comparatively inexpensive, but also peculiarly easy in motion, securing the draught directly from the axle, the front end of the springs being attached to the splinter-bar by a shackle. For a full description of the springs themselves, we refer the reader to our advertising columns, where the body is shown attached to the top of the front by four iron stays. This, however, is not absolutely necessary, as is illustrated by our Fashion Plate, where the novel Brougham gear is applied. In place of the hind body-loops, springs are substituted, connected to the combination spring by an elongated shackle. The front end of the hind spring is attached to the rocker by a shackle, similar to that on the front gear.

Dimensions.—Width of body at hinge-pillar, $48\frac{1}{2}$ in.; ditto at lock-

pillar, 44 in.; ditto back, 41½ in.; and at dash, 34½ in. Turn-under, 2½ in. Rocker-plates, 2½ × ½ in., fastened with 1¾ in. No. 18 screws. Height of wheels, 2 ft. 11 in. front, and 3 ft. 6 in., hind, without the tire. Depth of rims, 1½ in. Size of spokes, 1½ in. Number of spokes, 10 and 12. Stagger of spokes, ⅜ in. Hubs: front, 5¾ in.; and hind, 6 in. diameter. Front bands for front hubs, 4¼ in.; and back, 5 in. diameter. Front bands for hind hubs, 4½ in.; and back, 5¼ in. diameter. Length of front bands, 2 in. Length of hubs, 7½ in. Track, 3 ft. 10 in. front, and 4 ft. 8 in. hind, from out to out. Not being in possession of a scale for the different sizes of these springs, we omit those dimensions.

Finish.—Painting of the lower quarters, back and door panels, dark blue; and upper quarters, back, boot-panels and moldings, black. Gearing, the same color as the body, with a broad stripe of black, and two lines of light blue at a distance. Trimming, blue cloth throughout. Use large diamonds for the cushion top and lower back; and a plain roll to border the top of the back. The side quarters are tufted, and made of one squab showing three rolls of tufts. Use plain trimming for the doors, edged with broad and pasting-laces. Such Broughams are usually provided with a gong, card-case, and receptacles for comb, brushes, etc. Carpet, plain. Mountings, silver.

SIX-PASSENGER ROCKAWAY WITH CURTAIN QUARTERS.

(See Fashion Plate No. 14.)

SIX-PASSENGER CURTAIN ROCKAWAYS, although at present not in such active demand as formerly, are still sought for by many customers, especially at the South, and they certainly form very convenient family turnouts for the summer season. Curtains are sometimes quilted on the inside, and the vehicle can then be used in winter. But this is done only at the special request of the customer.

The accompanying cut represents a rockaway of the lighter class, although affording comfortable seat-room. • The back quarter of the body is made in the usual manner, with a thin panel put in the groove all around; and solid sides may be utilized on the front quarter and driver's seat. It will be noticed that the bottom molding of the front panel does not connect with the coupé-pillar, but follows in a straight line the shape of the wheel-house, intersecting with the coupé-pillar at the bottom.

We would recommend finishing the front part in the following manner: The heavy molding on a line with the arm-rail is to set in from the coupé-pillar ⅜ in., and from there the sides are worked down to the bottom of the coupé-pillar in such a manner as to set in about 1 in. from the outside. To accomplish this, a piece of thick whitewood, say 1½ in. thick, is glued to the outside of the front rockers. This piece is provided with a short tenon at the end facing the coupé-pillar, to give a better hold. This piece, after becoming dry, is then worked off to the desired shape.

The front can be made stationary, or sometimes of two halves. The front is made in two halves, the lower half being removable, as well as the top half; and in this use a narrow back-rail, similar to those used on phaetons. The back has a drop-light, which is about 14 × 21 in.

The timber entering into the construction of such a body should be made as light as possible. The rockers are 1½ in. thick, and wide enough to admit a 2½ in. rocker-plate. The front springs are clipped under the axle, to gain room for the carriage-part.

Dimensions.—Width of body at the hinge-pillar, 49 in.; ditto at lock-pillar, 47 in.; ditto at back, 41 in., ditto at dash, 32 in. Turn-under, 3½ in. Rocker-plates, 2½ × ⅜ in., fastened with 1¾ in. No. 16 screws. Height of front wheels, 3 ft. 2 in.; and hind, 3 ft. 10 in., without the tire. Depth of rims, 1⅜ in. Size of spokes, 1⅜ in. Number of spokes, 12 and 14. Stagger of spokes, ⅜ in. The front hubs are 5 in.; and hind, 5½ in. diameter. Front bands for front hubs, 3⅝ in.; and back, 4¼ in. diameter. Front bands for hind hubs, 3¾ in.; and back, 4⅜ in. diameter. Length of front bands, 2 in. Length of hubs, 7 in. Tire, 1⅝ × ⅝ in.

The front springs are elliptic, 38 in. long, from out to out, with 10 in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, and the next three No. 3 steel. Holes apart on the top half, 3½ in. Size of holes, ⅝ in. The hind springs are platform. The side-springs are 41 in. long, from out to out, with 10 in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 3¼ in. Size of holes, ⅝ in. The cross-spring is 38½ in. long, from center to center, with 4½ in. arch. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. Axles, 1⅝ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the panels, with the exception of the upper back panel, dark green. Moldings, black. Running-gear, a shade lighter than the body, striped with a heavy stripe of black, and two fine lines of light green at a distance. Trimming, green morocco for the backs and

cushions, and green cloth for the upper back, quarters, doors, falls and head-lining. The biscuit pattern may be used for the backs and cushions. A raiser, 1 in. wide, is intended to go around the outer edge of the fall, and is made of the same material as the fall. Carpet, green, with black figures. Mountings, silver.

NEW-YORK BUSINESS CART.

(See Fashion Plate No. 15.)

THIS attractive design has been reproduced, by permission, from a vehicle recently constructed by Mr. Chas. P. Ketterer, the celebrated wagon-maker of this city, to the order of the Adams Express Co., for the special use of their superintendent in his rounds of inspection. The design, as will be seen, is quite new, and admirably adapted to its purpose, doing great credit to its originator.

The frame-work of the body is light, and made of the best material. The panels are glued over the frame-work, and the moldings are glued and nailed to the panels. The moldings are chamfered, and the intersections of the vertical and horizontal moldings are finished in a manner similar to that usual on express wagons. The rocker for the toe-board is framed into the bottom sill, and plated on the inside. The seat is like that of a buggy, and is made to slide on the top rail, in order to give it the proper balance. A cricket is introduced, to be used in case the seat is shifted back too far from the toe-board to give the feet proper hold.

The body is hung on platform springs, these being considered best adapted to withstand the rough usage to which such a cart is liable to be subjected. The shafts are held in position by two iron stays, clipped on top of the side-springs, and by two bars which connect the shafts, one at the back end and the other where the whiffletree is placed. Strong iron plates are fastened to the bottom of the shafts, forming an angle at the bars long enough to take three bolts. The step-shank is welded solid to the plate. The holes on the top or step-plate are drilled so that the same bolt will take both plates.

Dimensions.—Width of body on top, 30 in.; and at bottom, 25 in. Width of seat on top, 36¾ in.; and at bottom, 31 in. Height of wheels, 4 ft., without the tire. Depth of rims, 1½ in. Size of spokes, 1¼ in. Hubs, 4½ × 7 in. The wheels are of the "Star" patent. Tire, 1¼ × ⅝ in., round edge steel.

The springs are platform. The side-springs are 46 in. long, from out to out, with 5 in. arch over all. Width of steel, 1¼ in. Number of plates, three, namely: the first No. 2, and the other two No. 3 steel. The cross-springs are 32¼ in., from center to center, with 4 in. arch over all. Width of steel, 1¼ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Axle, 1¼ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body-panels, dark green, and moldings black. Running-gear, carmine, with two medium stripes of black. Trimming, for cushion, fall and lazy-back, green morocco. Carpet, plain green. Mountings, silver.

GENERAL UTILITY WAGON.

(See Fashion Plate No. 16.)

THE accompanying drawing represents a style of wagon built at present in large numbers in the West, which can be utilized both for passengers and light freight.

It is provided with a movable baggage rack, for the accommodation of trunks and other parcels. If intended mainly for business purposes, this rack is made of two bars of iron, terminating in a hook toward the body. A plate is bolted to the bottom of the body, and provided with an eye for the reception of the hook. Five wooden slats are fastened across the two irons. A plate, having a hook, is fastened to the pillar at a place indicated on the drawing. A strong leather strap holds the back end of the rack in position. The body is also provided with a tail-gate, hinged to the bottom bar, and held in position on top by two spring hooks.

The seats resemble in appearance the so-called "Concord seat." They can be made either with solid sides, and the moldings nailed on, or of frame-work, with panels fastened from the inside. The latter method is the more expensive. The top is made of numerous narrow strips, and the uprights or pillars are made of one bent piece.

The suspension consists of four springs, namely: two elliptics, one at each end of the body, and two side-springs. The latter are fastened to the axle-beds and head-block (or bolsters), and are supplied with an elongated shackle.

Dimensions.—Width of body over all, 42 in. Height of wheels: front, 3 ft. 10 in.; and hind, 4 ft. 3 in., without the tire. Depth of rims, 1⅜ in. Size of spokes, 1¼ in. Number of spokes, 16. Stagger of spokes, ⅜ in. Hubs, 5¾ in. diameter. Front bands, 4¼ in., and back, 5 in. diameter. Length of front bands, 2 in. Length of hubs, 7½ in. Tire,

$1\frac{1}{4} \times \frac{5}{16}$ in., front; and $1\frac{1}{4} \times \frac{7}{16}$ in., hind. Sarven patent wheels are used to a great extent for this class of wagons.

Front spring, elliptic, 36 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, three, namely: the first No. 2, and the others No. 4 steel. Holes apart, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Hind spring, elliptic, 36 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, the second No. 3, and the other No. 4 steel. Holes apart, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Side-springs, $60\frac{1}{2}$ in. long, from out to out, with 9 in. arch over all. Width of steel, 2 in. Number of plates, six, namely: the first plate No. 2, and the others No. 3 steel. Holes apart, 7 in., from center to center. Size of holes, $\frac{3}{8}$ in. Axles, $1\frac{1}{2}$ in., half patent, with loose collar for sand bands. Track, 3 ft., from out to out.

Finish.—Painting of body and running-gear, either in natural wood color, with iron-work black; or body panels green, and frame-work black, striped with fine lines of canary color, and running-gear canary color, with a heavy stripe and two fine lines of black at a distance. Trimming for cushion and backs, black enameled leather. Mountings, silver.

BUCKBOARD WAGON.

(See Fashion Plate No. 17, on this page.)

THE manufacture of Buckboard Wagons has attained large proportions, and numerous inventions of new and improved modes of suspending the

finest grade of cast-steel, which make it the longest buggy spring in the market, and all carriage mechanics know that a long spring insures easier motion than a short one. A further advantage is that the springs proper are under the body and out of sight, the arms from the springs to the side-bar being alone exposed.

The construction of the body is simple, and does not differ materially from that of ordinary buckboards. The seat is constructed like a buggy seat, and rests on iron stays, as per drawing.

Dimensions.—The width of the bottom board is 24 in. Width of seat at bottom, 27 in., and ditto on top, 33 in. Height of front wheels, 3 ft. 8 in.; and hind, 4 ft. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{1}{2}$ in. diameter. Front bands, $2\frac{1}{4}$ in.; and back, $2\frac{3}{4}$ in. diameter. Length of front bands, $1\frac{5}{8}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $\frac{7}{8} \times \frac{1}{8}$ in., round edge steel. Axles, $\frac{7}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, black. Running-gear, dark green, striped with two fine lines of light green. Trimming, green leather for the back and cushions. Mountings, silver.

NEW-HAVEN BODY-MAKERS TO THE TRADE.

Among those making a specialty of carriages "in the white," Messrs. Holcomb Bros. & Co., on River-st., control the largest business. They build bodies of all descriptions, and also furnish carriage-parts as well, if desired. Numerous body-makers are employed, who keep our friend the foreman, Mr. G. W. Bronson, constantly busy. This firm have recently added wheel-making as a new

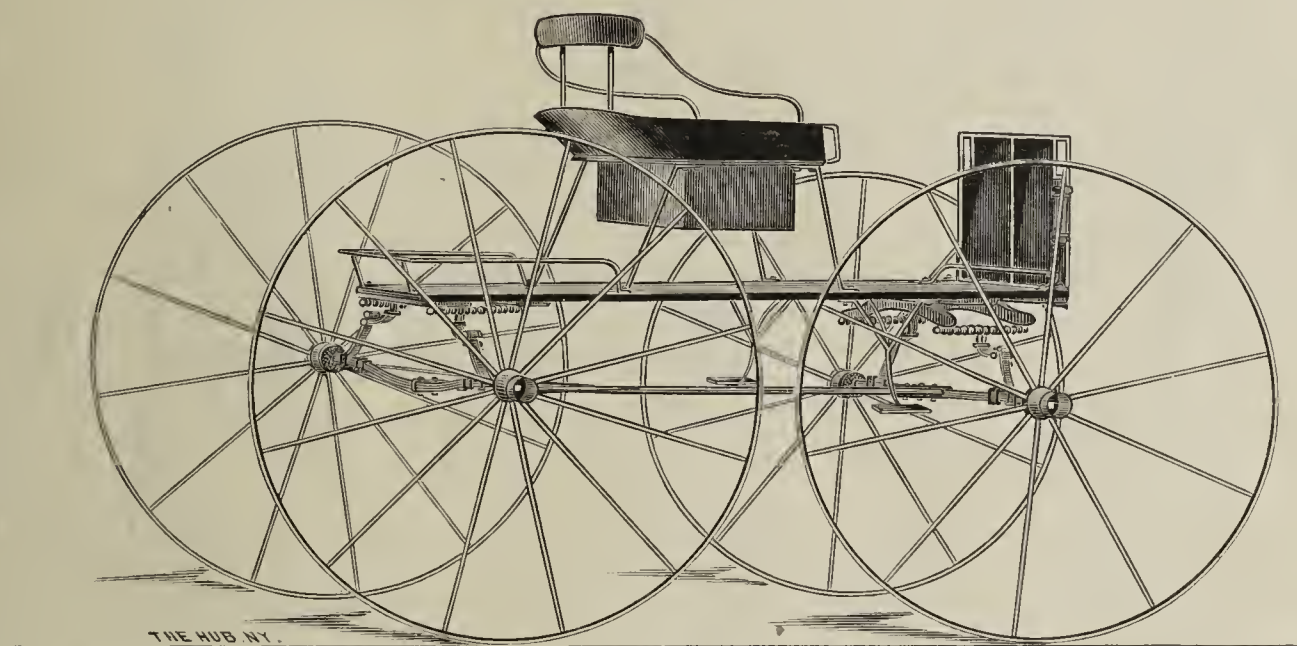


PLATE No. 17. BUCKBOARD WAGON,—SCALE, ONE-HALF INCH.

(See description on this page.)

body on the running-gear, specially adapted to this style, are now in the market. The vehicle represented in the accompanying design is hung on a coil spring, manufactured by the Magner & Thomas Spring Co., of Wellsville, N. Y., who have furnished us with the following description of its characteristic features:

Each spring consists of two separate bars of steel, made up in spiral shape. These two spirals are placed edge to edge, and firmly clipped together in the center of the long curved arm. The long curved arm of the spring terminates in an eye, which is bushed with brass to prevent noise when bolted to the side-bar shackles. The two short arms are bolted at the ends to the cross-bars of the body, and still further secured by clips, $2\frac{1}{2}$ in. from the bolts in the ends of the spring. The cross-bars of the body, at the point where these springs are attached, should be from 3 to 4 in. wide, and $7\frac{1}{2}$ in. apart, from center to center. For a further and fuller explanation of the foregoing, see our advertising department.

In using these springs on Buckboard, Sewing-machine, Delivery and Platform Wagons, where side-bars are dispensed with, they are attached to the cross-bars of the body as on side-bar vehicles, but the long arm is hung in a loose shackle, the same as in the case of the ordinary Buckboard with half springs.

The principle on which this coil spring works is very simple. All carriage-makers are aware that a spring of an elliptic shape becomes stronger the nearer the elliptic approaches in form to a complete circle; but, of course, as the load placed on the spring is increased, the spring gradually loses the circular form, becomes elongated, and correspondingly weakened. This is not the case with the coil spring, for, if a heavy load is put on it, the coils are wound up like a watch-spring, and instead of weakening under the pressure, the coils, in closing, continue to grow firmer and stronger, and yet have the same softness of motion. They will therefore carry a varying load of one, two or three persons with equal ease. There is also no side rock or end pitch, and no rattle, because there are only four joints in the gear, and these have milled bolts and brass bushings. Each spring comprises 23 feet of the

feature of their business. Their present engine is deemed too small for their increasing business, and a new one, of about 140-horse-power will be substituted during the coming summer.

Mr. Wm. Johnston, of 71 Hamilton-st., although not occupying as large a ground area as Messrs. Holcomb Bros., finds room enough to employ from 12 to 14 body-makers, and all the benches are occupied when business is booming. The depression last year naturally affected all body-makers to the trade as well as the carriage manufacturers, but hopes are entertained for a marked improvement this spring. Mr. Johnston has recently built many bodies for firms in New-York City, and to the entire satisfaction of those ordering.

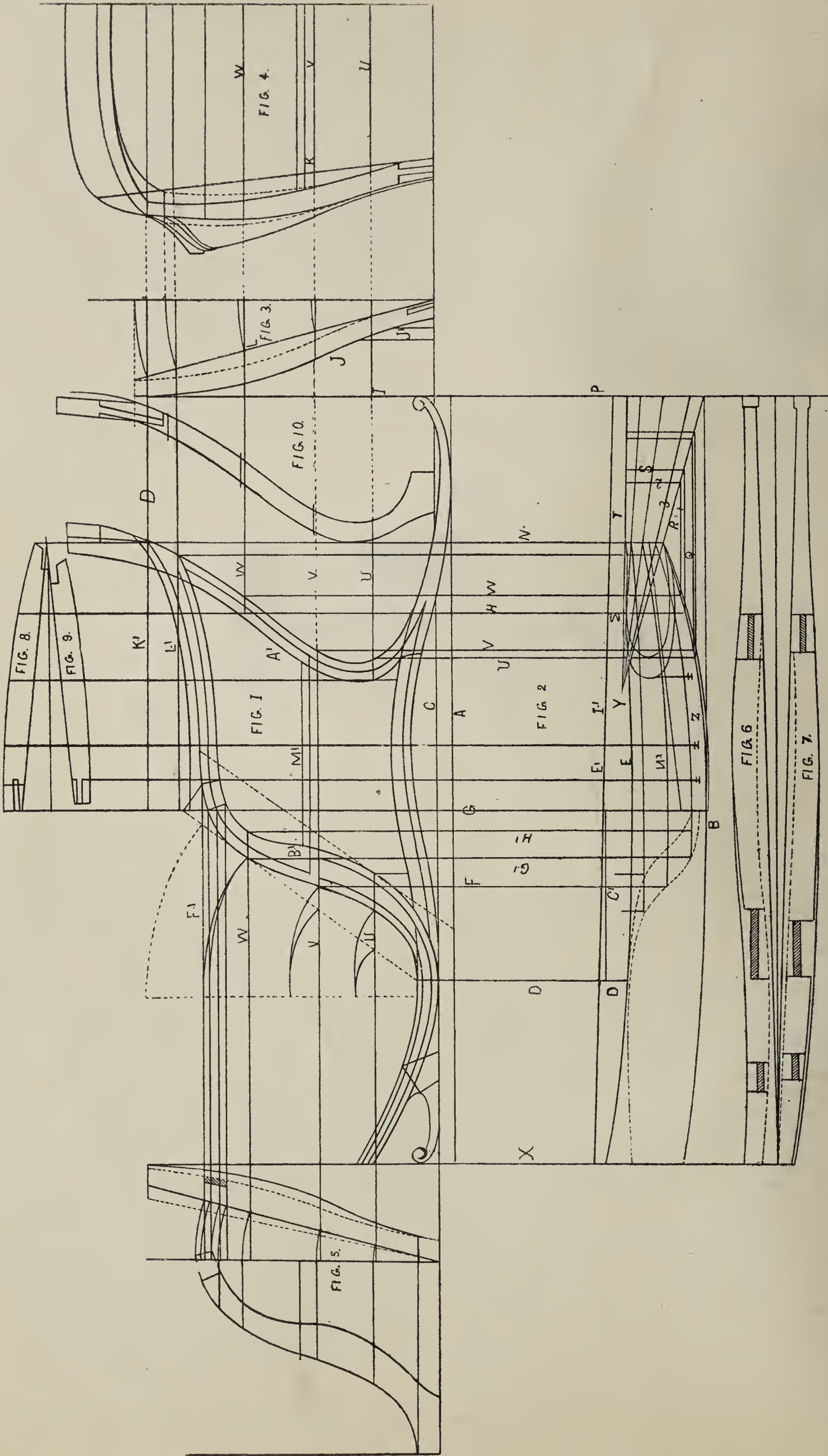
Messrs. Dann Bros. & Co., 80 Franklin-st., both build bodies and furnish the trade with all kinds of bent wood, and in the latter branch they do an extensive and profitable business. The bodies are mostly of the lighter grades. The buggy bodies built here are supplied with bent corner seats, made of three pieces, and put together at the corners by dovetails pressed together by steam power. This method makes a specially strong seat. The process, we believe, is patented.

Messrs. W. G. Shepard & Co., 80 Water-st., make a specialty of bent wood of large dimensions, such as bent bottomsides for Victorias, ogee pillars, corners for Landaus, shafts of all descriptions, etc., and have a well-earned reputation for skill. Three sons are associated with their father in the business, and all are inspired with ambition to bring wood-bending to the highest possible standard.

A. K.

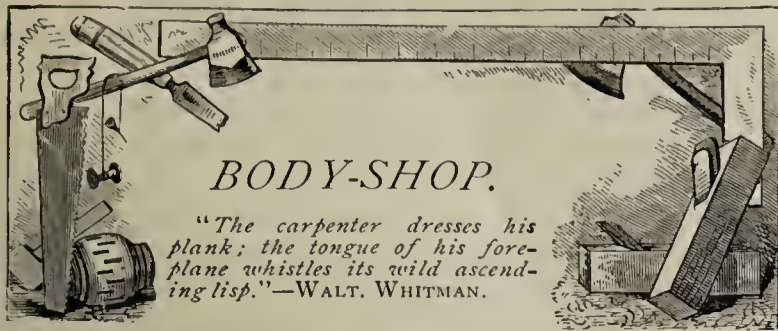
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WORKING DRAFT OF SPIDER PHAETON.—SCALE, ONE INCH TO THE FOOT.

(See description on opposite page.)



WORKING DRAFT OF SPIDER PHAETON.

(See Engraving on opposite page.)

To properly build the body of a Spider Phaeton of the design illustrated in the accompanying draft, it is imperative for the body-maker to be familiar with the rules for dressing and laying off the different pieces entering into its construction; but we will endeavor in the following description to explain the leading essentials.

QUALITY AND DIMENSIONS OF TIMBER.

Tough white-ash should be used for the bottomsides, as these have to bear great strain. The corner-pillars are made of best white-ash; and for the arm-rails, middle pillars, and all other parts constituting the framework of the body, use body ash. Use 3 in. ash for the bottomsides; 3 in. ash for the middle pillars; 4 in. ash for the hind corners or ogee pillars; $2\frac{1}{2}$ in. ash for the arm-rails; $1\frac{1}{2}$ in. ash for the seat-frame piece, and $1\frac{3}{4}$ in. ash for the toe-board pieces.

DIMENSIONS OF THE BODY.

Width of body on the middle pillar, on top of the arm-rail, 45 in.; ditto at the back, on top of the arm-rail, 39 in.; ditto at the back, on the bottom, 32 in.; ditto at the bottom of the bottomside, in front, $28\frac{1}{2}$ in. Turn-under, 7 in.

DRESSING OF THE VARIOUS PIECES.

When the side elevation has been drawn, and the lines necessary for dressing the different pieces have been established, we can then proceed with the operation of dressing.

Two patterns will have to be made for the hind corner and middle pillars, owing to their inclination, one to be used to mark off the side elevation, and the other, or lengthened pattern, to be used for dressing the pieces.

After the inside of the corner-pillar has been faced, lay on the pattern and mark off the width. Also mark off the end, top and bottom. Then take the bevel of line K, Fig. 4, and cross a mark over from the inside to the outside. Saw the ends off by this mark, and by another mark made on the inside top and bottom, parallel with ground line A, from the intersection of the cross mark with the inside face. Both ends are sawed off by these lines. Avoid sawing too close to the lines, but leave about $\frac{1}{4}$ in. margin.

After the ends are sawed off, take a square and cross over the line representing the back face of the pillar, at its intersection with the end at top and bottom. Lay the pattern on the other side, and mark off. The pillar is then dressed by these two lines.

The pillar is framed parallel with the ground line A. If the pillar were to follow a contracted line, we should then have to cross over a mark as indicated by the contracted line.

The rules just mentioned answer for the middle pillar as well. The bottomsides and arm-rails are vertical, and can therefore be dressed by the square. When dressing the arm-rail, allowance must be made for the lengthening of the same, which can easily be obtained by comparing the difference between the center and the contracted lines of Figs. 8 and 9. A short space at the back end of the arm-rail is worked so as to make it parallel with line A. The bevel is then set by the vertical and contracted lines. A mark is then crossed over at the terminus of the arm-rail by the bevel thus obtained at the back, for the guiding line by which to place the pattern.

LAYING OFF THE BACK CORNER-PILLAR.

We will now proceed to lay off the back corner-pillar, after having established line B, which is produced through the width of the body in front, center and back. The width given in front is $28\frac{1}{2}$ in., which is at the bottom of the sill. To obtain the width, as indicated by line B on the drawing, take the space between I and J at the line C, and place it at the intersection of lines E and X. This will give the third point for line B. The other two points are at the intersections of lines F and N with B. These three points are then connected by a line.

The next requisite is to establish line E. It will be noticed that, if we were to measure the distance between the lines I and J, on C, and place the same on line H, from the intersection with line B, toward line E, as is usually done, it would make the body four inches narrower at the bottom than the draft calls for, or two inches for the half width. This

would either carry the springs too far from the pump-handle, if placed the proper distance from the axle; or, if the springs were brought the right distance from the pump-handle, they would then be too far from the axle-collar. We therefore have to resort to the so-called "cheat-line," and the turn-under and side swell will have to be proportioned. To do this properly the proportional triangle requires to be used, and we explain below the method usually adopted.

Draw line O, from the widest part of line B, parallel with line A, of any length. Draw line R from the intersection of lines B and N, at any desired angle, until it intersects with line O. From the intersection of lines O and R, draw line P, now draw a horizontal line A from the intersection of lines B and H to R. From that point draw line S, parallel with line P. Take the space between lines I and J, on line C, Fig. 3, and carry that space on P. Then take the width of the back, at the line C, on Fig. 4, and place the amount on S, and also on H, near point M from line A. Draw line T through the points established on P and S, until it connects with line R, point Y. Then take the space again between lines I and J, on C, Fig. 3, and place the amount on F at its intersection with B. Draw a line from the intersection of T and N, through point M, to the point obtained on F; this is line E.

Three additional lines from the corner-pillar are necessary, namely: U, V and W; but as the process of obtaining the proper side sweep at the place where these lines intersect with the back corner-pillar is in all three cases the same, we will confine our description to method of obtaining line Z, which is as follows:

Draw a horizontal line from the intersection of line W, with line B, Fig. 2, to line I, R. Then draw a vertical line to line T, which is line 2. Then take the space between lines I and J, on W, Fig. 3, and place the amount on line P. From this point draw a line to point Y, line 3. Measure the distance between lines A and 3, at the intersection of lines 2 and 3, and place the same on line W. This will give one point for line Z. Take the distance again between lines I and J, on line W, and place it on line F, Fig. 2. This is the second point. The third point will be found at the intersection of lines N and 3. The connection of these three points will establish line Z. The remaining points at the lines U and V, are subject to the same rules, and further description is therefore unnecessary.

To obtain the width of the pillar at the front face, square a line from the intersection of the horizontal line W, with the front face to line Z, Fig. 2. From the intersection of these two lines measure to the ground line A, and carry the width to line W, on Fig. 4. The distance from line K to this point will be the width of the pillar at that place. This same process will answer to secure lines U and V.

The method of pricking off the front pillar B' is simple, the pillar not being contracted, but running parallel with the ground line A. It is as follows: Draw line C' from D' to E', this being the inside of the pillar B'. For pricking off, we utilize the lines U, V and W, and draw only one new line, F', from the top of pillar B'. Draw a vertical line from the intersections of these lines with the front and back face to line B, Fig. 2. Take the distance at line W, between lines I and J, on Fig. 3, and place it on line B, where the vertical line G' intersects with line B, Fig. 2. Place the same space on B, Fig. 2, where the vertical line H' intersects with B, Fig. 2. Take the space between line L and perpendicular line on line W, Fig. 3, and transfer the amount to line C', Fig. 2, placing one point of the compass at the intersection of lines G' and C', and the other toward B. The space remaining between this last point and the one pricked off from the outside, is the thickness of the pillar B'. The other points on pillar B are obtained by the same process.

If the bottomside had been straight, it would have been pricked off from line I'; and, as the inside of the bottomside is vertical, we would then only have to establish the outside sweep for the top face of the bottomside, which can be easily done by the process described in connection with pricking off the hind corner-pillar; but as the bottomside is swept, we will have to prick it off. A simple method to do this is as follows:

Transfer the highest point of the bottomside between lines D' and H, over to the standing-pillar, Fig. 3, on line J. From this point draw a vertical line to C. Then divide the distance between lines H and D' in equal parts. Draw these lines to the bottomside at Fig. 2. Then take the space between line C, Fig. 1, and the bottomside, either top or bottom, at the intersection of any of these lines, and carry the space over to line J, Fig. 3. The space between lines J and J' at this point is then transferred over to the corresponding line on E, Fig. 2. The distance between line E' and the point thus obtained is the thickness of the bottomside at that place.

From line D' we would prefer to prick off toward the front sweep of the bottomside in the regular way, or, if preferred, the method just described is equally available the whole length. The line J' is then only extended to the highest point of the toe-board.

For a better illustration of the foregoing, we have introduced two separate cuts of the bottomside, Fig. 6 showing the top face, and Fig. 7 the bottom face.

To lay off and prick off the arm-rail, draw two horizontal lines, K' and L', from the intersection of the top and bottom face of the arm-rail with the hind corner-pillar. Then draw vertical lines from the four points where the arm-rail intersects with the corner-pillar to the cant. Also draw additional vertical lines between the two ends of the arm-rail, as illustrated on the draft. Then draw horizontal lines from the intersection of all the vertical lines with the arm-rail on either top or bottom face, to the standing-pillar, Fig. 3. Take the space between the lines I and J, on Fig. 3, and place the space thus obtained, if it is from the top face of the arm-rail from line B, toward ground line A; but if from the bottom face of the arm-rail, then prick off the space from the line next to line B, on Fig. 2, as per dotted marks.

Figs. 8 and 9 represent the arm-rail pricked off; Fig. 8 showing the top view, and Fig. 9 the bottom view of the arm-rail.

The center piece M' is dressed on the inside by the bevel of line L, Fig. 3, and the outside is determined by line N', Fig. 2. Line N' represents the outside sweep of the bottom face. We have omitted the top face of piece M' to avoid unnecessary complication of lines. The sweep for the top face is obtained in the same manner as explained in connection with the proportional triangle.

When the body is framed, the different pieces may then be lightened out from the inside as per dotted lines. To make the appearance of the pillar B' more prominent, the bottomside is worked off gradually from the corner-pillar to the thickness of $\frac{3}{8}$ in., as indicated by dotted lines on Figs. 6 and 7. If the bottom plate is of sufficient strength, the rocker plate can be dispensed with.

ALBERT KEHRL.



CARRIAGE-PARTS, WITH SPECIAL REFERENCE TO PLATFORM WORK.

LECTURE BY MR. H. G. SHEPARD, OF NEW-HAVEN.

(Continued from page 28 in last number.)

[The following is a continuation of our full stenographic report, expressly prepared for *The Hub*, of the lecture delivered by Mr. H. G. Shepard, of New-Haven, Conn., on the evening of Wednesday, Feb. 20th, before the Class in Carriage Drafting and Construction connected with the Metropolitan Museum of Art Technical Schools, New-York.]

IN WHAT MONTH SHOULD HICKORY BE CUT?

QUESTION BY MR. BRITTON: I would like, Mr. Shepard, to give you a conundrum. Which is the best month in which to cut hickory?

MR. SHEPARD: It does not strike me as a very new conundrum. [Laughter.]

MR. BRITTON: The question is very old, but the answers, I have heard, do not always quite agree.

MR. SHEPARD: It is a question I have been considering for many years, and I have watched and carefully studied the timber after it has been cut in the different seasons. We have it cut for ourselves in August, September, October, November, December, January and February. As far as my observation has gone, I have been able to see but very little difference in the hickory cut in those months. I believe that any month after the leaves are matured, and after the sap has stopped running to nourish the growth of the leaves, is a good time to cut hickory. That is my belief, and it is based upon observation and experience. Other than this, I do not think it makes very much difference when it is cut. The common idea that hickory must be cut during August or September in order to be good, or to be best, is, I think, merely prejudice. I do not think there are any facts to support it. The time preferred used to be the full of the moon, in February; but I imagine the moon has as much to do with it, one way or the other, as with the growth of cucumbers. [Laughter.]

MR. BRITTON: I once asked a farmer the same question, and after carefully thinking it over, he finally replied, "February." I asked, "Why in February?" "Well," he says, "we farmers have less to do in that month." [Laughter.]

HOW TO JUDGE THE QUALITY OF STANDING TIMBER.

A VOICE: You have spoken, Mr. Shepard, of good and poor qualities of hickory growing side by side. Now, is there any way of judging of a tree, as to its quality, before it is cut?

MR. SHEPARD: I know of no absolute way of judging with certainty. Of course, we can tell something by the looks of the bark, by the leaves and twigs, and by the general appearance of the tree, whether it is thrifty, or whether it is nearly dead; and by the thrifty appearance of the tree we may judge somewhat of the character of the timber. But the best judgment may sometimes err even in this respect; and I know I have erred quite often. Indeed, after the tree has been cut, and we can examine the grain, we may even then err in our judgment in regard to the clearness and quality of timber, especially hickory.

MR. DIXON: Did you ever hear it claimed that the quality of the nuts on a hickory tree might indicate the quality of its timber?

MR. SHEPARD: I have; but I do not think the two facts have any relation one to the other. It is generally considered that the bitter-nut hickory is worthless; but I have seen bitter-nut timber as white and as strong as any other variety. I do not consider the quality of the nut any test.

MR. DIXON: There is a young man working for me who learned his trade in this State, and whose boss used to make it a point never to buy a tree which had borne good nuts. He claimed that the timber was always inclined, if the tree bore a very fine quality of nuts, to prove brash. Mr. Dunham is the young man to whom I refer; and if he is present, he may make the statement more in detail.

MR. SHEPARD: I recall one instance where I used the timber of a hickory tree that grew in a neighbor's front yard. To my certain knowledge, when I was a boy, it bore very excellent walnuts; but afterward it produced as good timber as any I ever saw,—coarse-grained, white and heavy. In that case I *know*, by my juvenile experience, that the nuts were excellent!

A VOICE: That neighbor evidently had a daughter.

MR. SHEPARD: Yes; he had. [Laughter.]

WORM-EATEN TIMBER.

MR. HOUGHTON: Do you often see specimens of bark marked in this way? [Exhibiting pieces of wood and bark taken from the school museum, partially eaten by worms.]

MR. SHEPARD: [Examining the specimens.] Not often with the regularity shown here. These worms would seem to have been trained in your technical school! They certainly have learned geometry! Those present who have not seen these specimens will be amply repaid for examining them. It is indeed wonderful to see with what system these little insects set about to destroy this timber. They seem to have possessed reasoning power as well as instinct. While we often find the work of such worms in the bark and the wood of timber, it is seldom that we find it outlined with this regularity. I do not know that I ever saw it before in such perfection.

A PROBLEM REGARDING THE DESTRUCTION OF SPOKES ON SHIPBOARD.

MR. FITZ-GERALD: Please hand me one of those spokes, Mr. Shepard, and I will ask you a question. Not long since some spokes were sent to me which had been returned from Australia. They had lost their strength at the point where the tenons joined the shoulder, and so much that the spokes broke in the form of a half circle, while the tenon retained its place. Each spoke, at this one point, had lost its life entirely, and had broken off. To what would you attribute that?

MR. SHEPARD: [Turning to the scholars.] I don't know that you heard the question, scholars. Mr. Fitz-Gerald was speaking of a spoke which came back from Australia, with the tenon decayed at the shoulder, while the tenon itself and body of the spoke remained sound. He wishes to know what I think was the cause of that. Of course, with problems like this given me to answer on the spur of the moment, I may be wrong in my judgment. I only give my opinion as it strikes me at the time. Spokes are liable to work in the hub. When they do, the paint cracks at that point, and consequently makes room for water. We know that heat and dampness will destroy hickory very rapidly, and right at that point it usually gives way first, and lets the water enter. I think dampness would accomplish the result named, and at the point named.

MR. FITZ-GERALD: But these spokes had never been used in a wheel. They had never been painted or varnished.

MR. SHEPARD: Then I give up the problem.

MR. BRITTON: Is it not possible that the dampness in the ship concentrated at that point? These spokes may have been heated and subjected to dampness.

MR. SHEPARD: Such might have been the case; but in this instance I feel very much like Robert Ingersoll, when, in the course of one of his lectures he gave the audience permission to ask questions, and an old lady asked him why the legs of an iron pot always burned off in the middle? When she was a girl,—and, indeed, when I was a boy,—they used to have round-bottom kettles with legs about four inches long. They would invariably burn in two about the middle of the leg. But this question was too much for Robert. [Laughter.] This question of Mr. Fitz-Gerald's is something like it, and I will admit that it is too much for me.

WHAT IS THE BEST TIMBER FOR HUBS?

A VOICE: I would like to ask, what is the best timber for hubs, and where can it be found?

MR. SHEPARD: The universal opinion of all our leading carriage-makers is, that elm is the best. Gum makes a very good hub, but the experience of most carriage-makers is, that it checks and decays too quickly; and that, I think, is the main reason why the gum hub is not as popular as the elm. Birch has been used to some extent in the past; but I don't know of any birch hubs being used lately. Birch splits easily. In elm we have that exceeding toughness that is necessary in the hub, and at the same time that exceeding hardness; and elm is considered the best timber of which a hub can be made,—unless you wish to make a very large and heavy wheel, and then there is nothing equal to white oak (in my opinion, and I think the opinion of every one) for both hubs and spokes, and also for rims.

By the way, the main reason why white oak is not the very best for carriage-parts and coach beds, is because it lacks in the element of stiffness. It is strong, and it is hard; but it never seems to season and become stiff. I believe, however, that white oak is the very best timber which can be put into futchels. In seasoning, it is true, it is very liable to check, and consequently it is not practicable to use it about a carriage where there is much surface to be painted; but the futchels are plated on the top and bottom, and they are confined between iron plates which furnish the required stiffness. In such a case white oak is hard and strong enough, and it will resist decay better than ash or hickory. We all know,—that is, those who have been carriage-makers,—that the oxide of iron or iron-rust is one of the most destructive influences that can come in contact with timber. Now white oak will resist decay better than ash or hickory.

A VOICE: Is locust well adapted for hubs?

MR. SHEPARD: I don't know from experience, but I should say locust would make a very fair hub. If I could not get elm or some other timber that I knew was excellent, I should be willing to try locust, and I think it would make a serviceable hub. It has hardness, and a good degree of toughness.

A VOICE: Would not the artificially toughened wood you have shown to-night have a tendency, when exposed to dampness, to lengthen out?

MR. SHEPARD: It might, to a certain extent; but in a carriage pole or shaft or hub it would not lengthen sufficiently to cause any trouble.

A VOICE: Wouldn't it also have a tendency to spread and become expanded?

MR. SHEPARD: No, not at all. In actual use, a carriage pole is exposed so little to the weather that, if the wood were upset 25 per cent., I don't believe it would lengthen 5 per cent. by reason of any exposure it would naturally have.

A VOICE: Where does the best elm come from?

MR. SHEPARD: That I can hardly say. I know you can get good elm almost anywhere in New-England, and I am not sure but that you will find it equally good in New-Jersey and other States. I am not so well posted in regard to elm, as I am about hickory and ash.

HARMONY BETWEEN THE CARRIAGE-PART AND BODY.

If those present think of no further questions to ask in regard to timber, I will now turn to the second part of my subject, as you will find it written on the blackboard behind me, namely: "Harmony Between the Carriage-part and the Body."

This is a topic rather hard for me to explain, but I can tell you one necessary thing to do, in order to have harmony between the body and the carriage-part, and that is, to have the same man who designs the body, design the carriage-part also. This is not always done. The draftsman in many a carriage-shop has but little to do with the carriage-part, but leaves that to the carriage-maker. The latter has his own ideas about the carriage-part, and these are often quite irrespective of what the special requirements of the particular body may be; but there should be harmony between the two. This is an important point, I believe, in carriage-making; and one that is seldom duly considered. I fear Mr. Britton may be after me by and by, on this subject, which pertains largely to the question of style. I will say this much, however. If the body is light and airy, the carriage-part should also be light and airy,—or, at least, should appear so. Sometimes, I would add, it is necessary to make a carriage-part appear light, and yet, at the same time, equally necessary that it should be heavy and strong. In order to effect this result we must make wider irons, and put on more iron and less wood.

As far as appearances are concerned, it should be a rule to always have the carriage-part in harmony with the body. I care not how well the vehicle is made,—how aristocratic the carriage-part may be, or how stylish the body, or how well it may be painted, or how elegantly it may be trimmed,—if there is lack of harmony between different parts, there will be no beauty in the vehicle as a whole. This is one great reason why there are so many shoddy-looking jobs to be observed. As far as customers are concerned, they may not be able to tell what the matter is

with the job, and they may admit that each part by itself is excellent; but, as a whole, they do not like it. The chances are that it is because the wheels, or the carriage-part, are not in harmony with the body. [Turning to Mr. Britton.] Now, Mr. Chairman, you may go for me!

MR. BRITTON: I would like to "go" for you, but I cannot just here. I fully endorse your remarks on harmony. Thirty years ago, five master workmen, each of whom had been a foreman in an important factory in your State, started a carriage-shop in Bridgeport, and it was the universal opinion among manufacturers that they would produce the best work ever turned out in the United States. I was given an opportunity to examine the first production of their shop. It was what is known as a Calash Coach. One of the members of the firm was a body-maker and draftsman, one was a painter, one a trimmer, one a blacksmith, and one an upholsterer. In each separate branch, the carriage they built certainly excelled; but, as a whole, it was an utter failure,—not as regarded its wearing qualities, but as regarded its appearance. There had been no master mind to control the whole, and hence there was no harmony between its different parts. Every man of them had done his level best, but the combined results of their separate endeavors was the worst possible failure.

A VOICE: They needed one skillful person in the firm to boss the whole job.

MR. BRITTON: That is just what they needed.

MR. SHEPARD: Yes, there should always be one master mind to design a vehicle from first to last in detail. But what is the present custom in many of our shops? Each department has its own boss, and each boss has full charge of his respective department, and designs each part to suit himself, and according to his own notions. How would the same method work in other things? Take the human frame for example. As God made it, it is one of the grandest and most perfect pieces of workmanship that man has ever seen. Now, suppose one master mind had formed the body, and another the running-part. The mind that formed the running-part might have had his own notions about how to construct that portion, and his notions might not have agreed with those of the other master mind. He might have put long legs on a short body, or short legs on a long body, and we should then, doubtless, have seen very much the same sort of job, so far as harmony of appearance is concerned, as we too often observe nowadays in a carriage. To have one harmonious whole, there must be one designing head. Has any one any criticism to offer upon that?

PRACTICAL VALUE OF FREE-HAND DRAWING.

MR. BRITTON: I certainly haven't. On the other hand, I believe the great and crying need of the carriage trade to-day, in respect to design, is a knowledge of free-hand drawing on the part of those who design carriages. In this school we have made some effort in this direction, but we have met with opposition. Some of the boys, after a little taste of free-hand drawing, fail to see any connection between it and making a carriage body. I can remember the time when, to my best knowledge there was not a draftsman in this country who was able to put a carriage on the blackboard in free-hand with any success. There are not many to-day. But this is the accomplishment that insures harmony. It is only when a draftsman can put a carriage on the blackboard without the aid of sweeps, that he can take the whole in his mind at one time. It is comparatively easy to make the drawing mechanically correct afterwards. Harmony of the design as a whole is only secured by the use of hand and eye combined, both working in obedience to the mind.

(To be continued.)

THE STREET-CAR.

To a person not much accustomed to travel, there is a mild excitement in getting on board of a street-car; it is in the nature of an adventure. The roar of the wheels in the iron track, the cheerful jingling of the bells, the effort to attract the attention of the driver, who, with one hand on the brake and the other controlling his fiery steeds, is always looking for a belated and hurrying passenger up the wrong street; the scant courtesy of the conductor, who watches, with his hand on the bell-pull, the placing of your foot on the step in order to give you the little shock necessary to settle your ideas—this mere getting on board has its pleasing anxieties and surprises. And then there is always the curiosity as to your fellow-passengers, and the advantage in studying character in a vehicle where people usually think it unnecessary to conceal their real natures. I have noticed that the first-comers in a car seem to think they have a sort of property in it, and they resent with a stare of surprise the entrance of the last-comer, as if his right to a seat depended upon their courtesy. In no other conveyance, I think, does one so perfectly realize how queer people are. Nowhere else, perhaps, are ugliness and oddity and eccentricity in dress such an offense. And then the passengers, ugly as they may be, are so indifferent to your opinion. It is something amazing, the conceit of ugly people.—CHARLES DUDLEY WARNER, in *St. Nicholas*.



AN ENGLISH OPINION ON DISHING WHEELS.

[The subject of dishing wheels is an ever-live one, and we quote the following intelligent description of the principles involved, from a long serial by Mr. W. T. Casson, on the general topic of carriage wheels, now appearing in the *Coach-Builders, Harness-Makers and Saddlers' Art Journal*, London.]

THE question of how much dish ought to be given to a wheel is partly an open question; no hard and fast laws can be laid down, as much depends upon the individual taste of the builder or customer. A small wheel requires less dish than a large one, as there is not such a side pressure put upon the spokes.

If too much dish be given to the carriage wheel, as is usually made, the wheel runs all on the outer edge of tire. Many a wheel may be found where, by having excessive dish, the front edge of the tire is worn out before the back is little more than touched. This is owing to the axle having been set so that the under spoke shall stand plumb, and the wheel not having been felloed so that the front diameter shall be less than the back. Had this been done, the tire would require to have been conical to fit, and to have been put on from the face instead of from the back, as is usually done.

To remedy this running on the front edge of the tire, less dish must be given to the wheel; and to give the wheel the strength required, the spokes must be "reeled" in the nave. This term is sometimes called "dodged," "staggered" or "speched," according to locality and usage. By this means every alternate mortise is made a half-inch or more behind the front spoke line, and thus a wheel with 1 inch dish has almost the same strength and advantages of one with 1½ inch dish, and the tire rests upon the ground almost level. If carriage wheels were made according to scientific theory, every dished wheel would have to be made conical on the tread, or beveled in proportion to the amount of dish. The question as to whether this additional labor would benefit the wheel, or make it wear better, is very doubtful, as every time the wheel is newly tired the felloes would require to be beveled more in proportion to the extra dish given, and the tire would have a constant tendency to slip off the front. By giving a moderate amount of dish, and reeling the spokes, the wheel can be made strong and durable, and run with almost as little friction as if perfectly straight up, and rest almost as flat upon the ground as could be desired.

Absolutely conical wheels are therefore unknown in carriage building, or are only met with when they are made to gratify some whim or fancy. It is one of those cases where scientific theory must give way to practical utility, and, instead of making the tread of the wheel at right angles to the spokes, it is made at right angles to the plane of the rim.

The following table gives the amount of dish that may be given upon an average to wheels of different heights. It should, however, be borne in mind that wheels for drags, or any top-heavy carriages, would require more dish than the wheels of a like diameter for a pony cart. In this respect much must be left to judgment, for an experienced carriage-builder will see at a glance if a wheel is strong enough to support its load, without consulting tables. Wheels upon coaches used for carrying mails and passengers in parts where railways have not yet penetrated, have been known to fail under a heavy load, solely through not having enough dish. For such top-heavy vehicles, double the dish may be given with advantage.

HEIGHT OF WHEEL.	AMOUNT OF DISH.	
	Measured from front spoke.	
2 feet 0 inches.....	1/2	inch.
2 " 6 ".....	5/8	"
3 " 0 ".....	3/4	"
3 " 6 ".....	7/8	"
4 " 0 ".....	1	"
4 " 6 ".....	1 1/8	"
5 " 0 ".....	1 1/4	"

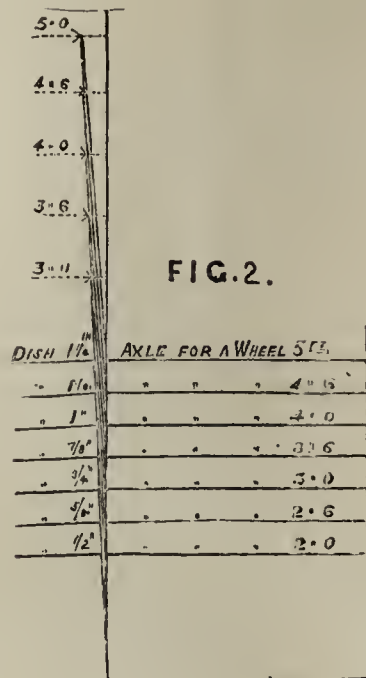
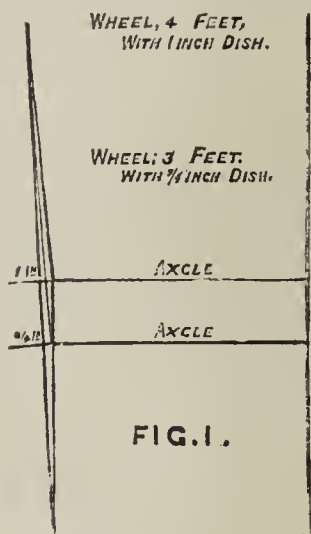
Double the height of wheel, double the dish.

This table must be taken for entirely new wheels, for ordinary work, and tired. Every time the wheel is repaired or the tire contracted, the dish will be largely increased, so it is advisable to begin with as small an amount as can be safely given.

In four-wheel carriages, the front and back wheels ought to dish in proportion to their height, so that the axles may be set the same and be of the same length. The front and back wheels will then track exactly, and the wheels line evenly across the face,

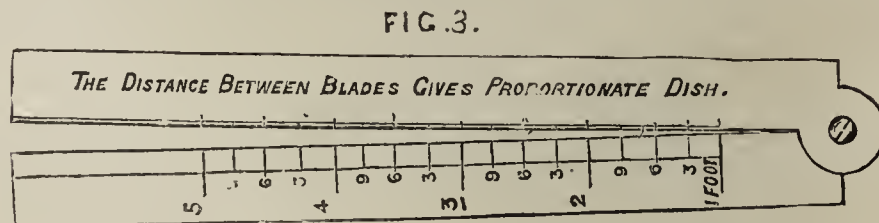
Thus, a set of wheels of 3 feet and 4 feet, require, according to the above table, to dish ¾ inch and 1 inch respectively, and if the axles be of the same length, the wheels will line truly across the face, and all the under spokes will be plumb spokes.

The accompanying illustrations will show this; in Fig. 1 the wheels are dished according to the preceding table, viz.: for 4 feet 1 inch dish, and for 3 feet ¾ inch dish; the under spokes are plumb, and the rims of both coincide.



The other, Fig. 2, explains itself, where the under spokes and rims of wheels, from 2 ft. to 5 ft., are shown to occupy the same lines, when dished according to the before-mentioned table.

There are one or two things which prevent the above from being mathematically correct, but were any attempt made to give the correct figures, few if any would care to fully understand them, and fewer still could work to the figures so given. It is also difficult to get two wheels to dish exactly to 1/16 inch, so it would be useless to give minute measurements. If it should be found that the foregoing table gives the dish too small or too large, it can be altered in proportion to the figures there given. A scale can be made in a few minutes that will give dish required for sets of wheels, without risking the errors of an arithmetical calculation. See Fig. 3, which explains the construction; the method of working is as follows:



A set of wheels is required of the extraordinary size, say of 2 feet 6 inches and 4 feet 6 inches, the axles to be of equal length, the under spoke plumb, and the faces of the wheels to line. If the front wheel dishes 1 inch, the dish of the hind may be found by setting the blades 1 inch wide at the 2 feet 6 inch mark, and then measuring across at the 4 feet 6 inch mark for that dish.

A pair of hind wheels may be required to match a pair of front ones, or *vice versa*; then, whatever dish the existing wheels may have, set the scale to it, and measure off the dish across the blades at the height that the new wheels require to be.

To measure the plumb spoke of a wheel, it is necessary to put a back spoke of one wheel and the front spoke of another vertical, and measure from the back of one to the front of the other. If the distance at the nave be equal to that at the felloe, the spokes will be plumb, or rather the mean of the two spokes will be plumb. Allowance must always be made for the axle bending under the load, and throwing the wheels out wider at the bottom.

EXCHANGE OF COMPLIMENTS.

"I REALLY can't understand why you don't pay me my little bill. You have never given me a single cent."
"If time wasn't money, I'd explain to you."
"Now you are giving me impudence."
"Well, you were complaining just now that I hadn't given you anything. You are always grumbling about nothing."
"You promised to pay me three months ago, and I relied on you."
"That's so."
"And you lied."
"Precisely so. I lied on you, and you relied on me; so we are even. Good-bye."—*Texas Siftings.*

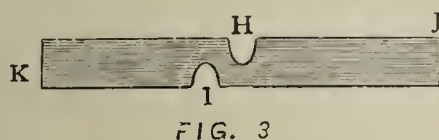


HOW TO MAKE HIGH STAY-ENDS.

To make high stay-ends or heels, where they join to the perches, beds or futchels, is easy enough if you only know how. We will endeavor, below, to tell you how. The piece shown in Fig. 1 is made by splitting it at B, thereby forming the ends C and D, and the butt A. Heat the



piece at A, and cool off C and D up to the split. Screw A into the vise on a line with the split; and then twist the parts C and D so as to assume the shape shown in Fig. 2, where the butt A, in Fig. 1, now becomes the



center E, C becomes F, remaining in its former position; and D becomes G, being now turned the other way.

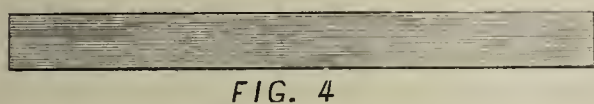


Fig. 3 shows a second method done by fullering in, and cutting out or drawing down the fullering, as at H and I. Then cut out the pieces J and K, as per dotted line, or draw down.

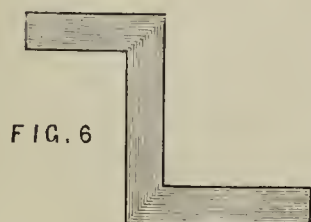
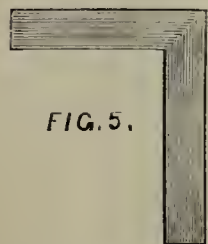
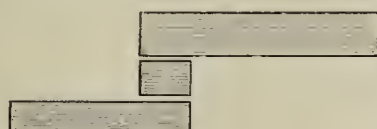
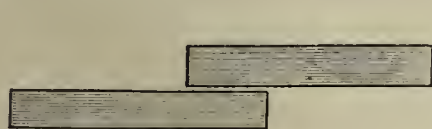


Fig. 4 shows a third method. Take a piece of the shape shown in 4, turn a corner as per Fig. 5, and another corner as per Fig. 6, or jump weld as per Fig. 7; or, if not high enough, weld a block between, as per Fig. 8.



All the above methods are good and safe, but the best and quickest is that shown by Fig. 3. Cut out the pieces J and K; work up to fancy or desired shape with tools, such as fullers large and small.

"HOW PAPERS" FOR THE CARRIAGE SMITH.

I. HOW TO TEMPER STEEL.

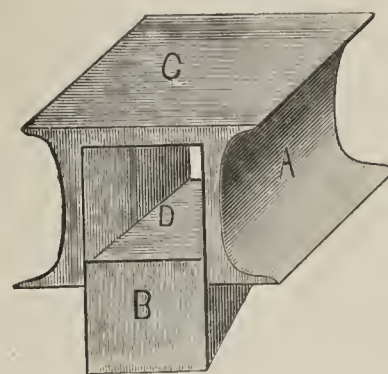
STEEL may be toughened by the following process: Rosin, two pounds; tallow, two pounds; black pitch, one pound. Melt the whole. Heat the steel and dip into the compound, repeating the process until the steel is tough enough to suit.

II. HOW TO WELD WROUGHT AND CAST-IRON.

To WELD wrought iron to malleable cast-iron, take of black oxide of manganese, one-quarter part; of borax, pulverized, one part; of sal ammoniac, one-half part; of iron or steel filings, one-quarter part; of white beach sand, one part. Mix well. Heat the pieces to be welded to a cherry red, and roll or dip in the compound. Place the wrought iron in the fire first. When it is a red heat, place the malleable cast piece in the fire. Both pieces will reach a welding point at the same time. Remove to the anvil, and manipulate gently until the two pieces are joined, after which you are at liberty to pound away about the same as you would with ordinary wrought iron.

AN ANVIL WITHIN AN ANVIL.

THERE are many intricate irons that the blacksmith is called upon to forge, which give him much labor and annoyance. The butt or arse of the average anvil often proves insufficient to perform the work required, and the average smith strives to overcome the difficulty by opening a vise, and lodging a piece of flat iron across the jaws, in this manner improvising a temporary anvil or tool to suit the wants of the occasion. But this is a miserable makeshift at best, compared with the handy tool we illustrate in the accompanying cut, which is simply an anvil within an anvil.

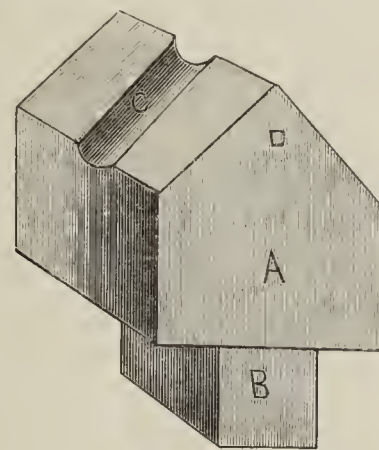


A represents the body of the tool; B the shank to put in the anvil; C the face; and D an opening extending all the way through. Make a solid face with steel, bore out the hole, and dress up to shape with files.

We think you will admit, after having made and used this tool, that you have thereby gained a convenience worth more than what you have paid for *The Hub* this year.

HOW TO BEND HALF-OVAL CORNER-IRONS.

THE easiest way is always the best way of doing things, if it does it well. We herewith show a simple contrivance for bending corner-irons which are flat on one side and rounding on the other.



A represents the body of the tool; B, the piece fitting into the anvil; D, the upper section made to a right angle; and C, the countersunk or hollowed portion (same as a swage), into which you place the corner-iron. The helper must hold on with the sledge while you bend and fit one side, and *vice versa*. By regulating C, you can get any angle you may require. The hollowed out or swage portion, C, is on both sides of the tool. Face with steel, the same as any other tool.

HOW TO MAKE A SPRING-HEAD.

Springs have not always been made by machinery. It was once the custom to make them by hand. Our object in this "How Paper" is to explain how to make the head of a spring by hand.

If you have one head to make, first make two lugs as per Fig. 1, from Norway iron, about 1 inch wide, $\frac{1}{8}$ inch thick, and, when doubled, about $1\frac{1}{4}$ inch long. Heat the steel, and upset the end. While hot, place on



FIG. 1.

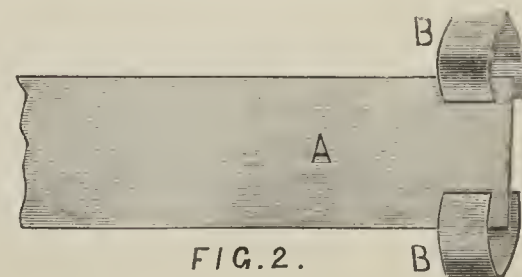


FIG. 2.

the lugs (the lugs or clips are left cold), and set down so as to hold in position. Take a flux, heat, and weld. With a round chisel, shape the ears, and then turn. Next drill the holes in the ears. Thin out the outer end with a fuller and bottom swage. Then take the eye or bottom plate, heat the head, put in the eye, and drive in the drift-pin. Then dress up with swage and hammers.

Don't heat too hot, or hammer after the red heat has gone. A hot file helps a little on this kind of job. Allow to cool, and finish with a file before tempering.

SHOULD BOTH AXLES BE THE SAME LENGTH?

TERRE HAUTE, IND., March 10th.

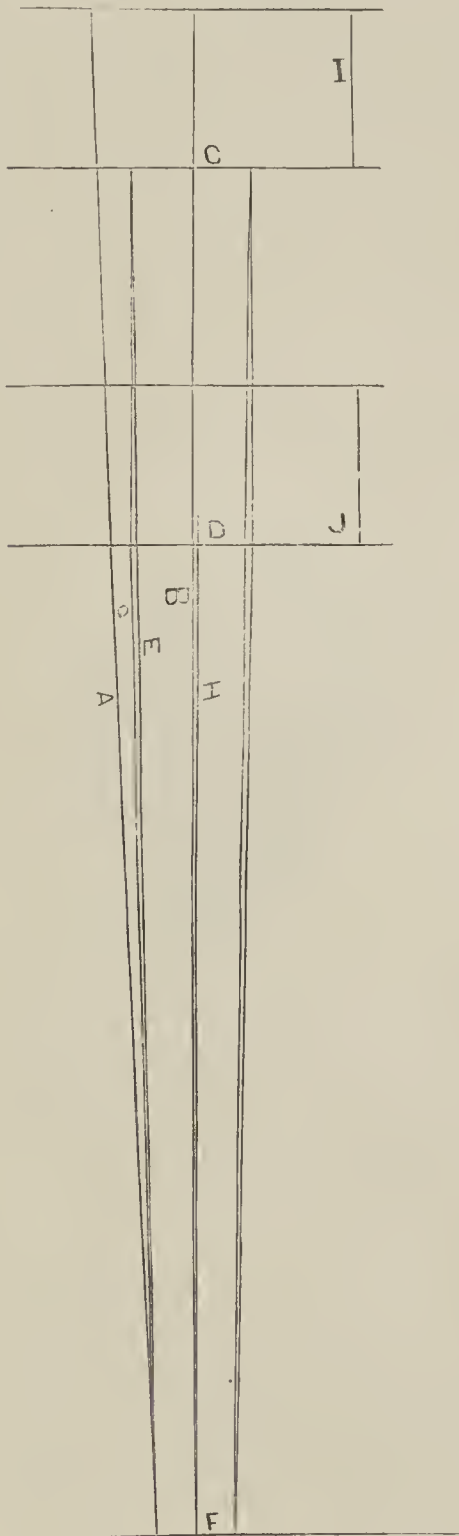
EDITOR OF THE HUB—DEAR SIR: Will you please publish whether it is right to weld the hind axle the longer, or not; and if so, please give your reasons why it should be longer?

MARTIN O'CONNELL, in April *Hub*.

ANSWER.—We believe authorities do not fully agree on this subject, but we present below our own opinion, and shall be happy to hear from any of our readers who disagree therefrom, and to have an expression of their views.

If the axle is set so as to have the under spoke plumb, the length of the front and hind axle is the same, and if the front face of the spoke is taken for the plumb line, the spokes of all four wheels can then be driven by the same gauge.

On the other hand, if the axle is set so that the plumb or vertical line goes through the center of the spoke or spokes, and there is any stagger, then the dish of the front wheel will be less, and the front spokes cannot be driven by the same gauge as the hind; for if the same gauge should be applied on all four wheels, it would bring the front spokes somewhat out of plumb, or inclining backward. This would carry the hub backward also, and the front axle would then be a trifle shorter.



For a better illustration of the above, we here introduce a cut which is drawn to the scale of 3 in. to the foot. In this drawing A represents the face of the rim, and B the center line of the spokes, which are $1\frac{1}{2}$ in. at the hub, with $\frac{3}{8}$ in. stagger. The size of the spokes near the rim is $1\frac{1}{4}$ in. The wheels are 3 and 4 ft., with a 5 in. hub. C and D are the bottom faces of the hubs. The hind wheel, which has $\frac{1}{2}$ in. dish, is represented by line E, intersecting with line A at the bottom of line F.

As the width of the spokes, and also the stagger, are alike, the distance between the vertical line B and the front face of the spoke must be the same at the hub for the hind and front wheel, which will produce line G. This proves that, in this instance, the dish for the front wheel is $\frac{1}{4}$ in., while that of the hind wheel is $\frac{1}{2}$ in.; and if the spokes were driven by the same gauge, the dish, at the height of the front wheel would be $\frac{3}{8}$ in., represented by line E. This, however, would bring the front spoke $\frac{1}{8}$ in. out of plumb, as is shown by line H.

The distance of the hubs, from the face of the front spoke to the back, being alike on both the front and hind hubs, it would bring the back end

of the front hubs $\frac{1}{8}$ in. nearer the center of the axle, as is shown by lines I and J; whereof I represents the hind hub, and J the front hub. But as this would throw the front spoke $\frac{1}{8}$ in. out of plumb, and it is our desire to retain the plumb spoke on all four wheels, the front wheels must consequently have less dish, and this would make the length of the axles equal.

Less difference in the heights of the wheels will diminish the difference between the dish of the front and hind wheels. ALBERT KEHRL.

HOW TO FIT A DROP-POLE BUGGY GEAR.

[See articles on same subject in October *Hub*, 1883, page 428; and March, 1884, page 786.]

COLUMBUS, O., April 6th.

EDITOR OF THE HUB—DEAR SIR: In the October *Hub*, page 428, you offered a correspondent several methods of making a pole carry without dropping; but in the March number Mr. Geo. W. Kerr showed the impracticability of all of these. I suppose that fresh suggestions will now be desirable, and as I have plans for effecting the result aimed at, I will describe them, in the hope that they may prove of service.

The most obvious way of gaining the desired end would be to run a rod from the upper part of the gearing, but the necessity of turning the axle seems to prevent this. Now, any point on the pole must describe a circle round the king-bolt, so that a rod from this point, fastened to the king-bolt, would leave the axle free to turn. Moreover, if the king-bolt were extended through the spring-bar, the rod could then be fastened to it there.

I would ask, then, why cannot a rod be extended from the pole near the doubletree to the center of the spring-bar, and be there fastened by a single bolt, to allow of turning? This, of course, would tend to pull the spring forward, but if the straps which usually connect the perch and sills of the body were inclined forward, they would counteract this effect.

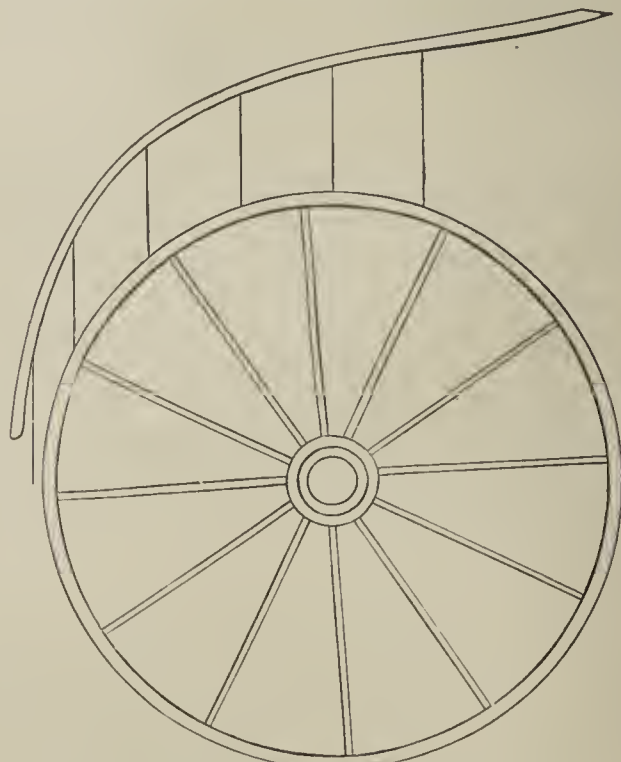
Another way of securing the same result might be effected, I think, by a modification of one of the plans suggested by *The Hub*, if irons were passed from the pole, and clipped to the bottom of the axle, thence passing up to the perch, where, instead of being bolted to it, they should be joined and formed into an arc, with the king-bolt for a center, and looped to the perch so as to allow the axle to turn. This plan would throw the strain on the perch.

Of course, any arrangement of this kind must weaken and detract from the appearance of a vehicle, but there are circumstances in which it becomes desirable, even under these conditions. S. M. H.

NOTE.—We are still at work on this problem, and hope soon to be able to offer a satisfactory solution. We find our correspondent's views suggestive, and well worth consideration.

HOW TO DETERMINE THE POSITION OF HIND WINGS.

DRAW the full size of the wheel on the blackboard. Then draw a series of vertical lines as per cut, the number of which is not limited.



The distance of the wing above the wheel should, if possible, be $\frac{1}{2}$ in. more than the opening of the back springs, in order to prevent the wing from striking the wheel. After the distance of the wing from the wheel at the different points has been established, then draw in the sweep. Reproduce the sweep from the draft on a board, or on paper, for the blacksmith to work by.



LAMPBLACK AS A GROUND.

WHITE HALL, FREDERICK CO., VA., April 2d.

TO THE EDITOR: When you use Masury's ground colors, you thin them with turpentine to the right working consistency, do you not?

Will these colors make a durable job over themselves; or would it be better to use lampblack for the ground?

Please tell me, also, how to mix lampblack for first color coats.

Yours truly,

R. B. HENSELL.

ANSWER.—(1). Yes, all prepared colors are intended to be thinned with turpentine to the proper working consistency.

(2). The colors named ought to work well together, one coat over the other. Of course, in the case of a black job, lampblack may be used for the ground, and will make a good one.

(3). Lampblack, as a ground or for first coats, should be mixed in a good drying japan; then run through the mill, and thin with turpentine to proper working consistency. Many of our best painters also add a little raw oil, to make it adhesive.

L.

RECEIPT FOR PRODUCING OLIVE GREENS.

RICHMOND, VA., April 9th.

EDITOR OF THE HUB—DEAR SIR: A Victoria built in New-York recently came to my attention, and I particularly admired the shade of painting, which was a dark rich green, of the olive tint. Can you tell me how this color is produced? By so doing, you will greatly oblige,

Yours truly, S.

ANSWER.—Olive greens are rather the prevailing colors at present, and there are many shades, but the secret of producing them is about the same in all cases, the chief difference being in tinting from deep to light. The job you refer to seems to have been of the deep tint, and we describe below the present method of producing such.

There are many prepared colors of this order, but if you wish to make it yourself, proceed as follows: Take Quaker green, and tone it to the desired shade with ivory black. Use this as a groundwork, one or two coats. Then take yellow-lake, add to it varnish enough to bring it to the consistency of ordinary color-and-varnish, and glaze with this.

Some painters tint their yellow lake with a drop or two of Quaker green; while others tint it with a drop of carmine; and others with just a touch of Prussian blue. Any of these additions will produce a rich color, and we advise the trial of all three, to give variety to your work.

Dutch-pink can be used, in the above receipt, as a substitute for yellow-lake on cheaper grades of work; but we do not advise the use of any pinks, such as the Dutch or rose, on account of their liability to "fly," or fade.

L.

PENCILS FOR STRIPING.

DUBUQUE, IOWA, April 10th.

TO THE EDITOR: What kind of a pencil do you consider best adapted for striping? An answer will oblige a subscriber.

Yours truly, D.

ANSWER.—In order to give a definite answer to this question, we should need to know something about the character of the striping to be done, whether broad, medium or fine lines; but we will endeavor, in the following, to cover all the ordinary needs of the striper, and our correspondent can then choose to suit himself.

For broad stripes, say a half inch or so, and where heavy colors are used, such as white-lead, vermilion, etc., sable-hair pencils are much to be preferred, on account of their strength and elasticity, which enable them to carry and distribute the color more evenly than a camel's-hair pencil would do, the latter being more limber, and entirely too weak to hold up such heavy colors. The round-quill, wire-bound pencils of this class will be found most suitable. There are many varieties of sable-hair pencils; and the best and highest-priced, having life and elasticity, so that they will spring back to place, will always be found the cheapest in the end. For blacks, Indian red, and other light-bodied colors, camel's-hair pencils are preferable for such broad stripes, as they are less apt to slide than the sable.

For medium stripes, the same styles of pencils already mentioned are equally adapted.

For fine-lining, the flat or "sword pencil" has now come into very general use, although we occasionally hear of some painter belonging to

the old school who still adheres to his round fine-liners. The flat shape is preferable for the reason that it carries much more color, and consequently enables the painter to do more work with it, and with less joining and patching, than was the case with the round pencil. Speed and better work are consequently the advantages which are offered by it. We have frequently seen stripers—and there are several such in this city,—who are able, with one dip, to carry a clean even stripe around the rim of a large wheel without once removing the pencil. This fact sufficiently illustrates the advantages of the "sword pencil," and we would advise every beginner to start fresh with one, and every old fellow to give it a trial and start over again.

"Sword pencils" can now be purchased at most artists' stores, but all the best stripers prefer to make their own; and we therefore describe below the method they use, which can easily be followed by any reader who so desires.

Proceed thus: Take a broad striping pencil, and grease it flat. Slit the quill with a knife, and remove the quill, together with the wire binding, etc. Then lift off, with the point of a small pocket-knife, enough of the hair to make the desired fine-liner. Then take a flat piece of straight-grained soft white-pine, a little wider than a lead-pencil; slit this up the middle three-quarters of an inch or so; then shave the outer sides down, tapering to a chisel point. Have a little melted glue handy. Dip the ends of the hairs which are free from grease, into the glue. Insert the point of your knife into the slit of the wooden handle, and gently open it. Lay the glued ends of the hairs flat in the open slit. Withdraw the knife-point, when the slit will close. Bind all with a piece of silk or thread,—the former being preferable on account of its fineness. Allow the pencil to stand, before using, until the glue thoroughly hardens. Shellac may be used instead of glue, if it is handier. Either glue or shellac will keep the hairs together, and prevent leakage.

The length of the hairs in such a "sword pencil" must be adapted to the taste of the striper. Some experts prefer them as long as two or three inches, but for the beginner and for all general work, the medium length—or about two inches, by one-quarter inch wide—will be found most serviceable.

L.

KAURI GUM.

COACH varnish, as most of our readers are no doubt aware, is composed of four essential ingredients, namely: (1) a fossil or semi-fossil gum, more or less brittle, which gives it body; (2) linseed oil, which counteracts the brittle quality of the gum, and gives it durability; (3) some dryer, to insure its hardening properly; and (4) turpentine, to further liquefy the mixture and act as a vehicle during its application. There are several varieties of copal gum which are utilized for this purpose, but Kauri, which comes from New-Zealand, composes the great bulk of that now in demand by American varnish-makers; and the following account of its origin and collection, extracted from an article which recently appeared in *Lippincott's Monthly*, will be found interesting:

* * *

Somber, solemn, and grand are the kauri forests of Northern New-Zealand, and alas! they are rapidly diminishing before the too busy axe of the lumberer. The kauri is the pine-tree of New-Zealand, the sole representative of the coniferous family, and a very noble representative it is, though by no means answering to our ordinary notions of pine-trees, inasmuch as its foliage consists of leaves instead of needles; but it is tall and straight as a mast, and a very majestic mast, for these stately trees range from fifteen to fifty feet in girth, and attain a height of from a hundred to two hundred feet ere they commence throwing out the branches which form their crown of somber green.

This is a special industry peculiar to northern New-Zealand, and the precious gum is a semi-fossilized deposit, which is found buried at a depth of five or six feet below the surface of the ground, on tracts of open land, where in bygone ages grew kauri forests which have long since disappeared. It is thought probable that these forests have been burnt, and that the exceeding heat liquefied the resin and caused it to flow more freely, for the digger is sometime rewarded by finding a lump as big as his own body, though more frequently it lies buried in fragments from the size of an egg to that of a man's head.

The value of the gum varies with its color, which is sometimes of a rich brown, sometimes bright amber, and occasionally almost like pale crystal. Sometimes it is clouded, sometimes quite clear, revealing flies and tiny beetles which, perhaps for ages, have been enshrined in its transparent depths. The clearest and most crystalline pieces fetch the highest prices, and are carved into ornaments hardly to be distinguished from amber, but very much more brittle. When these extra fine pieces have been selected, the rest is sold in the Auckland market at from thirty to forty pounds (\$150 to \$200) a ton, and is purchased by English and American manufacturers of varnish.

The amount collected must be enormous, as the value of the annual export from the colony ranges from seventy thousand to two hundred thousand pounds. None is found in the Southern Isle, nor, indeed, to the south of latitude 37° 30', which is the southernmost limit of the growth of the kauri.

Whether the special qualities of the buried gum are due to old age, or to the possible action of fire, is unknown; but that which is obtained from the living tree is altogether worthless for the market, being soft and sticky—in fact, simple

resin. Large quantities in this condition are sometimes found about the roots of growing trees in the forest; but of this very little can be turned to account.

At one time, as many as two thousand men made their living as professional gum-diggers; but in these more settled days other occupations are found to be more remunerative, and a comparatively small number now adopt this as their regular employment—those who do so being for the most part the unsettled, roving members of the community. They are a mixed lot—of very much the same stamp as an average colony of gold-diggers.

HOW TO PRODUCE MUNICH LAKE.

NEW-HAVEN, March 10, 1884.

EDITOR OF THE HUB—DEAR SIR: Please accept my thanks for the valuable receipt for making deep purple lake, which you published in your March number (page 789), in response to my request. If you will let me, I would like now to trouble you once more, by asking you to kindly furnish me with a similar receipt for producing Munich lake.

By so doing, you will place me still more in debt to *The Hub* for favors granted.

Yours truly,

T.

ANSWER.—Munich lake is one of the lightest of the lakes in shade, but is strong in body, and quite durable. Where a light shade of lake is required, it is now generally used by our city painters.

For a groundwork, use black tinted with Indian-red. The chief object of the painter in producing a ground for any lake or other color that requires a glazing, is to bring the shade of his groundwork as close as possible to the shade of the glazing that is to be applied over it; and, by observing this rule, much trouble can be obviated as regards liability of streaked or cloudy work. This will suggest the proportion of Indian red which should be added to the black, in order to produce the most suitable groundwork for Munich lake. In mixing the groundwork, sufficient oil should be added to give it an egg-shell gloss.

Coming now to the glazing, or color proper, if a ready-prepared pigment is used, only that ground in varnish should be applied, as, if ground in japan, the purity of the color will be likely to be impaired; and instead of a rich wine color, you will be apt to get a muddy, cloudy beer color. If the color is to be prepared in the shop, then procure the very best quality of either English or French Munich lake (we find little difference in their quality); and grind in a good light-colored rubbing varnish,—the lighter the better, as, the deeper the varnish, the more the tendency to impairment of shade. Great care must be observed to have the stone, mill, brushes, cups and everything connected with the preparation and application of this color, absolutely clean. Before adding the varnish, thin the lake to the required consistency with spirits of turpentine.

Two coats of Munich lake, glazed over a suitable ground, will be found to produce the full richness of the color; but we would suggest that, in the subsequent varnish coats, a little of the lake be added to the varnish, to counteract the yellowish shade of the latter, and retain the purity of the color.

L.

JAPAN BROWNS AND GREENS.

THE browns now most popular, and they are daily becoming more so, are the japan browns. We published an article upon them, about three years ago, in which Mr. Wm. B. Long, of this city, called attention to their great beauty and permanence, and prophesied that they were destined to become popular, the result showing the wisdom of his foresight.

These japan browns are made as follows: Use a groundwork of black, tinted with Indian-red, making the shade as near that of the color proper as possible, whether light, medium or deep. Then take in a cup enough black japan for two coats, and add to it a few drops of Indian-red; mix well together, and apply as a color-and-varnish or glaze. The asphaltum in the black japan floats to the surface in setting or drying, and will be found to produce a rich golden brown, which is particularly attractive, and, to our mind, in every way preferable to the more expensive imported lakes.

Another way to produce japan brown is this. Take a groundwork of black and Indian-red as a starting-point; draw enough black japan in the cup for two coats (which will be sufficient); add enough of No. 40 carmine,—say, a lump about the size of a walnut,—to give the japan a rich, deep golden shade; then add one drop (or two, at most) of Indian-red. Instead of the Indian-red, some painters substitute a drop or two of Quaker green, which gives another shade, more of the olive brown. Others, still, substitute a drop or two of lemon chrome-yellow. Which-ever combination is used, mix well together; and apply as a glazing or color-and-varnish.

Japan browns, made as above indicated, not only produce the richest and deepest shades of brown, but one that is very durable,—certainly more so than the lakes, which, from their nature as cochineal colors, are apt to “fly” or fade.

Browns of still other shades may be produced by the same method above described, but instead of using the carmine or Indian-red to tint

the black japan, substitute burnt sienna, raw and burnt umber, etc., or a drop of vermilion.

Japan greens are also coming into fashion. Every enterprising painter ought to give them a trial, and one careful experiment with the receipt which we give below should remove all doubt as to their practicability.

For a groundwork, take Quaker green—deep, medium or light, according to the shade required; tint this with black, until the special shade desired is reached. Then take an egg-cup about half full of No. 40 carmine, already mixed in varnish; and add enough Quaker green to bring it to the shade desired. Mix well together, and apply as a glaze or color-and-varnish.

Some painters prefer to substitute lemon chrome-yellow for the Quaker green, which gives it a lighter shade. Of course, less lemon chrome will be required than of the Quaker green, or about one-half.

PRESENT STYLES OF PAINTING MEDIUM AND HEAVY WORK.

IN continuation of the article which appeared in our last number on the subject of “Present Styles of Painting Light Work,” we give below a few similar hints on present styles of painting the medium and heavier classes of carriages, as suggested by the spring exhibitions of our leading city builders.

The prevailing colors for both medium and heavy work are greens, lakes, blues and browns, and their comparative popularity is about in the order named, greens having the decided preference.

Greens are produced in a great variety of shades, the most stylish being those of the olive tint. On the previous page, we give a receipt for mixing these olive greens, which will be found sufficient.

The olive greens, when used on medium*or heavy work, are often striped with three lines of vermilion, that is, two quarter-inch stripes, from $\frac{3}{4}$ to $1\frac{1}{4}$ inch apart, varying according to the size of the spoke, and centered by a fine line of the same. Such vermilion striping is now always glazed with carmine; and, if well done, it produces a very rich effect. Where the green is lighter in shade, it is sometimes striped with black, arranged in the same manner as above described.

The lakes now most popular are deep purple and Munich lake. The manner of producing deep purple lake, as practiced at present by the best city painters, was fully described in the March *Hub*, page 789; and a receipt for producing Munich lake, called for by one of our subscribers who had evidently profited by our former receipt, will be found elsewhere on this page.

The blue most commonly used is Prussian blue, tinted with white, and glazed with ultramarine. It may be striped with cream-color, straw-color, light orange or lemon, in three lines, arranged in the same manner as described in connection with the greens. In applying the light colored stripes, such as straw-color, over a blue ground, it will be found necessary to go over the striping twice, in order to get it solid. Many a job has been imperfect in results, even where very carefully executed, by omitting the second application. This is a hint worth noting. It of course requires special skill and accuracy to apply this second stripe over the first; but all our best strippers now follow this course whenever a light-colored stripe is applied over any deep ground.

The browns, although not very generally used at present, are forcing their way gradually, and, in a few leading shops, they were particularly noticeable in the spring exhibitions this year. We expect to see the browns take a much more prominent position as soon as the new mode of producing them from black japan has become familiar to the trade. We have already mentioned these japan browns quite prominently; but, as yet, very few painters seem to have taken the trouble to utilize our suggestions. We have therefore prepared for our readers another presentation of the subject, which appears on this page under the title of “Japan Browns and Greens,” including several receipts; and we hope these may be studied and tested by many readers.

Besides the japan browns, there are many others known to the trade, such as the umber and sienna browns; but we see very little of these nowadays. Tan and *cuir* color seem also to have served their generation and passed away. Brown stripings have also gone out.

The striping for the japan browns may be rich cream-color, vermilion, or the lighter shades of lemon yellow. To our mind, nothing seems richer than a warm cream-colored stripe over a japan brown. This is of course entirely a matter of taste, and others prefer vermilion, and others again white.

The most common manner of arranging the striping has already been described,—that is, two stripes, with a center fine-line. We may add, in concluding, that some painters still adhere to the old style of “full-striping,” that is, a quarter-inch stripe, distanced by two fine-lines; and this was noticeable on some few medium and heavy jobs which we saw in the spring exhibitions. We also noticed a seeming disposition to return to the old style of one half-inch stripe of vermilion glazed with carmine, with no fine-lining, which always looks well on a heavy job. L.



DESIGN FOR TRIMMING PHYSICIANS' PHAETONS AND CABRIOLETS: PART II.

(See illustration on this page.)

SOME physicians prefer roll-up curtains and some close tops. Fig. 1, presented in our last number, is adapted for either. In Fig. 2 I give you a design for the upper section of a close-top job, so that they can be accommodated in any case. This second cut shows the side and back, with adjustable lining, quilted through with the up and down stitch,—

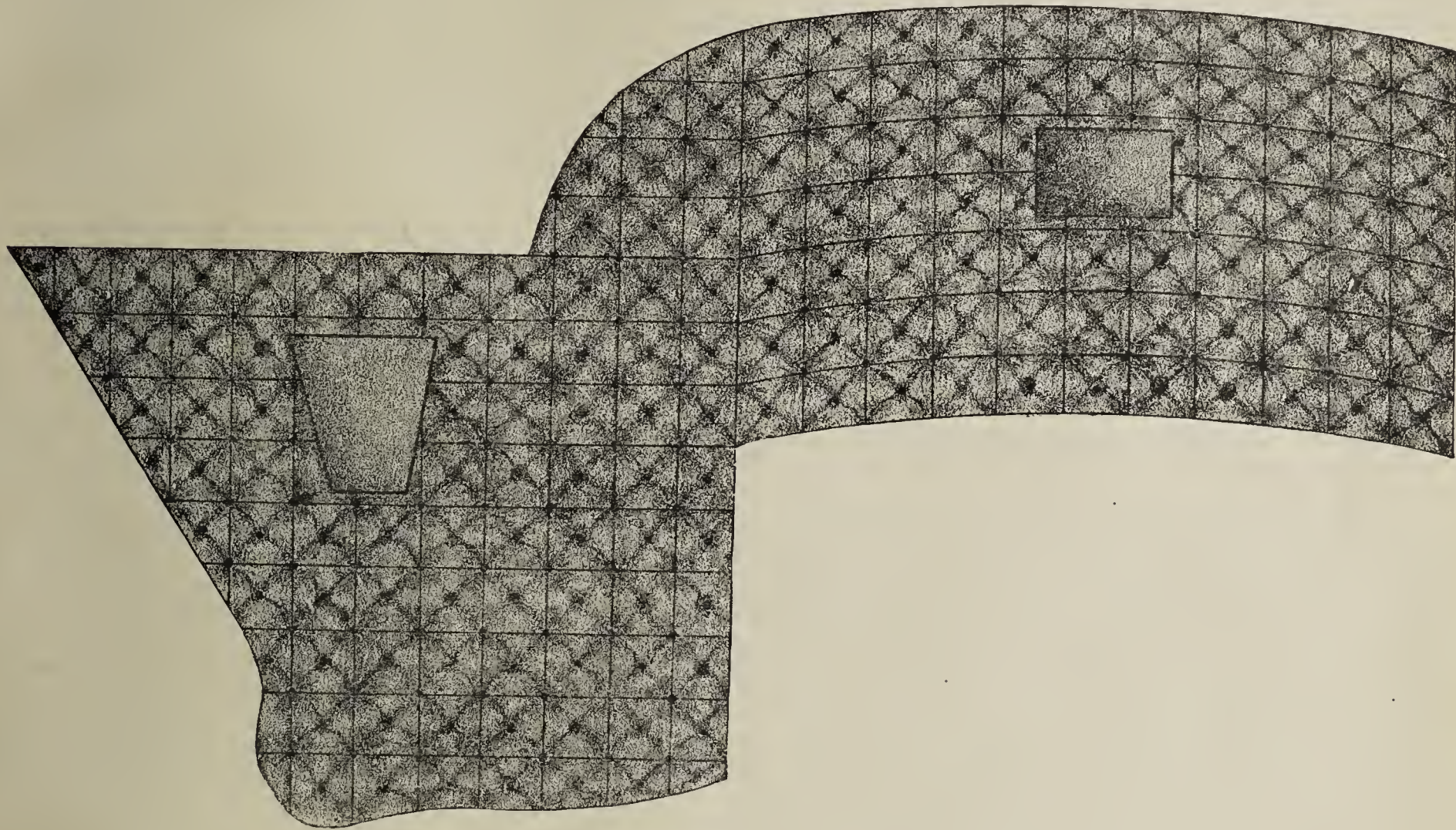


FIG. II. UPPER SIDE-QUARTER AND BACK FOR PHYSICIANS' PHAETON.

(See description on this page.)

some call it "crow foot." This is made on one ply of buckram, fitted neatly to the job. Mark for your windows after you have it all quilted. Then cut from the frame, and bind the side, which is made separate from the back, and joined together afterward. The two are fastened up with large hooks and eyes.

The details of trimming such a job have been so minutely detailed in Part I of this article, which appeared in the last number, page 33, that I think no further particulars will be necessary. If, however, any points are not fully understood, I shall be happy to explain them further to any correspondent who will suggest the need.

W. H. E.

A REMEDY FOR UNTIDY CURTAINS.

I HAVE been much interested in the prize offers made public in the January *Hub*; but, unfortunately, I am not prepared with anything new relating to a Physicians' Phaeton. I have, however, a contribution to make to your pages which I hope may prove of material aid to the carriage trade generally, and I trust it may prove satisfactory to you, even though it cannot come into competition for your prizes.

When the winter is once over, the curtains that kept out the cold winds and snows from the traveler as he journeyed on in his buggy or wagon, are taken down, and the fresh airs of spring are welcome to the unsheltered driver; or in case the curtains are left up, they are fastened to the top in many an unsightly roll. Who has not been annoyed by the unsightly appearance of such a curtain, with one end fastened by its strap,

and the other swinging at an angle of forty to fifty degrees, in untidy looseness? Or one strap has perhaps broken or torn out; and, rather than be bothered by the swinging mass, and annoyed by its hang-dog look, the curtains are taken down, piled under the seat, very likely in a very damp condition, there to rest until some sudden shower compels a hurried replacement of them amid damp and rain.

Now, by the plan I am about to propose, this replacing can be done without stopping the horse, and be done quickly and satisfactorily. My device is simple and inexpensive, as follows:

It consists of one rod for each curtain, preferably a light steel one, with a hook on each bow, into which the rod will fit closely. When not in use, the curtain may be stored away in two ways, viz.: The curtain can be wrapped compactly around the rod, and suspended on hooks inside the panel; or the rod can be made to run through loops on the curtain, by which means the curtain can be taken from the rod, and placed in its usual box, if so desired. When required for use, the driver simply unrolls the curtain, and suspends the rod to which it is attached on the hooks, which may have a spring contrivance to hold the rod securely in its place.

This device can be used to equal advantage on canopy tops. In this case, a second rod, attached to the bottom of the curtain, would be convenient.

One merit I claim for my plan is, that it gives greater life to the curtain. It is at the top or bottom fastenings that the curtain bears the strain and consequently gives way, and, therefore, by using a rod in the manner described, this strain is equalized. Furthermore, the liability of the rotting of the curtain when confined in the seat box is, by following my first plan of suspending it inside the panel, entirely done away with.

The saving of time and temper in taking down or putting up is another important consideration; and, if my plan proves feasible, we shall no longer be annoyed or annoy others by the wild waving in the wind of curtains that have lost their attachment for the vehicle they were placed on; and their frantic efforts to tear loose the last thread or tack that binds them to it, will be avoided. Have you not often seen this, Mr. Editor, in the case of the side or rear curtain of some vehicle in advance of the one you chanced to be driving in, waving its wings in the air like some monster bird? And how you must have wished to discover a remedy for this!

I had prepared some drawings to elucidate my idea better, but I now believe them to be unnecessary, as I think the plan I propose will be clear to all who read this. I therefore refrain from sending them to you.

EDWARD LEON HYNEMAN.

COLUMBUS, O., April 4th.

"A little off color:" Decoration on the back of a visitor who has leaned against a newly-painted carriage wheel.

MATERIALS AND METHODS APPLICABLE TO CARRIAGE CUSHIONS.

IN THREE PARTS: PART II.

THE next points to consider, in the make-up of carriage cushions, are the methods to be employed to produce the best and most advantageous results.

We are of the opinion that the style of the cushion should be governed somewhat by the quality and texture of the trimming material. Silk materials seem to naturally require a French top, with the smallest possible amount of fullness, in order to obtain the desired regularity; while for goatskin we would suggest the common divided cushion, with some fullness in the tops, this fullness to be gathered and wrinkled in with the sewing, and the top to be lined with a thickness of sheet cotton between. Cushions of cloth should also be made on the latter named principle, but with a less amount of fullness in the tops, and the design should be pressed with a heavy iron. In either of these styles of cushions, the opening should be left sufficiently large to easily admit the hand to lay in the stuffing; or, to use the appropriate language of a former correspondent of *The Hub*, "each fiber should be allowed to intermingle with the others, the whole forming an even and compact mass."

The stuffing-stick should be entirely discarded, as it crowds the hair into wads, and therefore produces unevenness, and correspondingly impairs its buoyancy and elastic power. Inferior grades of hair, if well picked and properly stuffed into the cushion, will produce as great a degree of buoyancy as the best kind if crammed in by the aid of the stick.

An unequal distribution of the stuffing material is of common occurrence, resulting from endeavors to obtain smooth facings. As soft cushions were demanded, the centers of these were often entirely neglected, when the whole difficulty arose from the indifferent sewing and uneven tension. To stuff the cushion evenly requires practice, as the workman is almost wholly guided by the sense of touch, and it requires time before this sense becomes sufficiently acute to obtain the desired results. I believe that a person devoid of sight could perform this work equally as well, if not better, than one possessed of vision, as, by his infirmity, his sense of touch would commonly be more acute.

An idea seems to prevail that, in order to obtain smooth facings these must necessarily be made very stiff. I am inclined to differ on this point, for the simple reason that a stiff front facing, once broken, always remains broken; and this almost invariably occurs when the trimmer attempts to turn the cushion through the opening after the sewing is completed. A thickness of any pliable material, particularly burlaps, well pasted over this lace facing, is almost invariably quite sufficient. The lace should previously be edged, and the edging should cover the entire width of the lace. This is sufficient to aid in the sewing. Shrink out any fullness which may occur in the lace, to which the cut, figured patterns are frequently liable.

The final, but not least important point that should command attention, as tending to increase the easy-riding qualities of the carriage, is the foundation or substance upon which the cushions rest. As has already been remarked, a carriage is subjected to a jolting motion, and to decrease and modify this motion will proportionally tend to increase its comfortable riding qualities. To again quote the pointed remarks of your former correspondent: "The elasticity of any upholstery is greatly increased and enhanced by being suspended, and by not being brought into direct contact with any solid or inelastic substance." Now, a solid surfaced seat-board would present such an inelastic foundation, whereas a caned or webbed seat-board presents more of the desired elastic quality, and tends to modify and decrease the jarring and jolting motion present in a carriage.

Caned seats are nothing new, and were formerly very common in all closed carriages; but they gradually fell into disuse, partly by the introduction of spiral springs in the cushions, and partly also by reason of the changes and inadaptability of these seats to the prevailing styles of bodies, particularly to the English-quarter style, as the seat-board in these latter invariably formed part of the bottom of the body. Any tendency toward the former full-swept bodies (and, no doubt, these will again, sometime, become the prevailing style) would again admit of the introduction of these caned or webbed seats. The frequent want of proper care in making caned seats also counted against them, depriving them of the properties for which they were intended, by presenting a much larger width of framing than necessary, and proportionately a very diminutive area of caning. This defect was particularly common in seats presenting considerable curve at the front.

It must be evident that, in order to secure the most desirable properties of cane seats, it should be the aim of the trimmer to secure the largest area of elastic surface compatible with the area of the seat. We may perhaps better illustrate this point by aid of the accompanying cuts.

Fig. 1 represents a sectional view of the caned seat commonly in use. The shaded portion shows the width of the wood frame, and the dotted

line shows the width of the caning. It will here be noticed that the holes for securing the caning are near the *inside edge* of the frame, and consequently the space between the points A and A comprises the whole

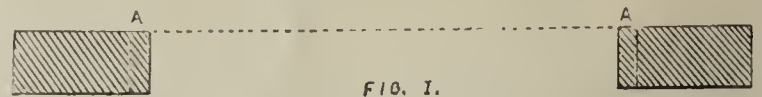


FIG. 1.

elastic surface of this seat. An answer to the question, "How can we secure a greater elastic area, and, at the same time, avoid diminishing the strength of the frame?" will be found by glancing at Fig. 2.

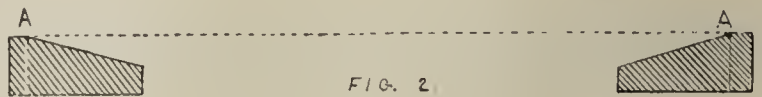


FIG. 2.

Here, it will be noticed, the caning is secured near the *outside edge* of the frame; and, by beveling off the top inside portion of this frame, we allow for the sag which will result from the weight or pressure brought to bear upon the surface, and still clear any part of the frame inside and under the caning. We thus secure, between the points A and A, a considerably greater area of elastic surface. I am of the opinion that a seat-board constructed after this pattern will answer every desired purpose, and possess more of the required properties; and, as the strain upon the framing is transverse, the beveling off of a portion will not materially impair its solidity or strength.

To allow for the sagging that will naturally occur in seats of this description, additional attention should be given to the stuffing and tufting of the cushions that are to rest upon this surface. The centers of the cushion should be given more stuffing, and the center tufts should not be drawn down as close.

If we were to web these seats close with wide upholsterer's webbing, this would answer the same purpose as the caning, and the frame could be constructed after the same pattern. The webbing would require to be covered over with a light sprinkling of hair or cotton, previously to drawing over the seat covering, and this would require to be of better texture than the ordinary cambric commonly used for this purpose.

To further increase the comfortable qualities of these cushioned seats, and to render them still more elastic, spiral sofa springs were introduced into them, but so many complaints were urged against these, that they have been almost entirely discarded, and at present it is only occasionally that one is ordered. It proved difficult to learn the defects complained of, on account of the inability of customers, unfamiliar with their construction, to definitely state their objections, which, moreover, frequently passed through a number of persons before reaching the workman, and thus in many cases were entirely misconstrued. The objections urged against these sofa spring cushions were very conflicting. Some claimed that they possessed no elasticity; while some said that they had too much elastic power, throwing and tossing the occupants about upon the seats. They were variously reported upon as too hard, too soft, too thick, too thin, and in fact *too everything* but the right thing; and the poor trimmer, having no personal experience of their riding quality, owing to the simple fact that he never rode on them, naturally gained a prejudice against them.

Unquestionably there is some just cause for complaint against these sofa springs, but we should take a practical view of the situation and endeavor to ascertain the source of the difficulty. What are the principles of their construction? Different methods may have been employed in their make-up, but their principles of construction have ordinarily been identical. The usual manner of proceeding was the same as that employed in the squabbed-top cushions, and they presented the same appearance as these when completed. The space allowed for the springs was the height of the facings of the cushions, and the squabbed-top afforded the necessary stuffing required over their surface.

The methods employed for securing and holding these springs included the following: A wooden frame was required, of the exact shape, but a trifle smaller than the intended cushion, the wood of this frame being usually about one and a half inch square, with a brace through the center to prevent bending by the straining of the twine, in the lashing and tying of the springs. Two thicknesses of buckram, pasted together and tacked to the under side of the frame, formed the horizontal foundation upon which the springs were secured; and they were sewed with twine to their required positions. By means of stout twine the springs were compressed into their desired height, and retained in their several positions at the surface by means of this twine passing over lengthwise, at right angles and also diagonally, and knotted to the springs and in turn secured to the frame. This network of twine over the surface of the springs was afterward covered with firm burlaps, and then inserted into the prepared space in the under part of the cushion, a large opening being allowed for this purpose. Some additional stuffing was required around the sides and edges, and the cushion was then closed in and tufted, the tufting strings running through the entire cushion to the bottom.

(To be continued.)

N.



TRADE GOSSIP OF THE PAST MONTH.

THERE is no longer any doubt about it! The tide has certainly turned! There are exceptions to the rule; but the rule itself, as indicated by hundreds of reports received by us during the last half of March and the first half of April, clearly point to an encouraging revival of the carriage business in all sections of the country, and a healthful spring demand in all classes of the so-called "legitimate trade," including substantial medium-priced work as the leading feature. Dealers in carriage findings, and manufacturers of carriage specialties of recognized worth, express themselves as well satisfied with present orders and future prospects; and, indeed, the only complaints that have reached us during the past two months have come from wholesale manufacturers of low-priced work; and experience of the past seems to indicate that the trade of that class of builders is more or less dependent upon dullness elsewhere, so that a howl from that quarter is rather encouraging than otherwise.

* * *

THE time and place for holding the Twelfth Annual Convention of the Carriage Builders' National Association have been fixed, and active preparations are now in progress. Time: October 15th and 16th. Place: St. Louis, Mo. Official head-quarters: the Southern Hotel. At a special meeting of the Executive Committee of the Association, held in New-York on March 20th, when five of the seven members of that body were present, all necessary preliminaries were determined upon; and powers duly deputed by which such preliminaries may be carried out. The responsibility for the success of each annual meeting devolves upon the Executive Committee, as the official representatives of the Association in all business matters; but, according to their custom, they have selected a Committee of Arrangements located in the city where the convention is to be held, namely: Messrs. Henry Timken, W. T. Haydock and Frank L. Wright, and conferred upon them adequate powers for making all necessary arrangements for the accommodation of the business meetings and trade exhibition. An early and active interest is manifested in the convention; and the exhibition particularly promises to prove a feature of unusual importance.

* * *

The so-called "Swindler Syndicate" has been busily at work during the past month, and the results of its labors will be found stated in another part of this number. Mr. Austin Huntington, of Messrs. Huntington & Huntington, the lawyer chosen to represent the syndicate at the trial of Lazier, proceeded to Simcoe, Ontario, on April 1st; and on his way was joined at Buffalo, N. Y., by Mr. Lammerts, one of the carriage-builders who had been swindled by a confidence man, supposed to be Lazier, who accompanied Mr. Huntington to Simcoe, where, having been confronted with Lazier at the jail, he positively identified the prisoner as the person who had swindled him. At Simcoe, Mr. Huntington was also joined by Mr. Morrison, carriage-builder, of Aylmer, Ontario, another of the Canadian victims, who had in his possession evidence of forgery by Lazier. The trial of Lazier occurred on April 7th, when he plead guilty to the charge of "false pretences," and was sentenced to imprisonment for three years. His record, as detailed elsewhere in this number, shows that he has frequently escaped heretofore by reason of the intervention of friends; and the chances are that, excepting for the energetic action of the "Swindler Syndicate," he would have been similarly rescued this time. The entire carriage trade therefore owes a debt of gratitude to the committee who championed their cause, checkmated the overtures of his influential friends, and gave Justice an opportunity to deal to him his deserts.

* * *

An increased interest in four-in-hand coaching is manifested this spring, and forms one of the most encouraging trade tokens that

has come to our notice during the past month. Fashion has its influence in matters vehicular as well in most other directions; and the fashion for coaching is evidently on the increase in our leading American cities. One of our leading New-York houses reports a number of orders now in hand for Drags and Breaks. Three Coaches of "regulation pattern" have just been received in Boston, besides several four-horse Breaks; and we understand that preparations are under way to establish a coaching club in that city, in addition to their present Country Club, which is practically a driving association. The Coaching Club of New-York is already preparing for its spring meet. It has been arranged that the New-York and Pelham coach "Greyhound" will run between the Hotel Brunswick and the Country Club at Pelham, from April 28 to May 30, leaving the Hotel Brunswick at 11 A. M., and arriving at the Country Club House at 12.45 P. M. Returning, the coach will leave Pelham at 3.45 P. M., and arrive at the Hotel Brunswick at 5.30 P. M. The route is by way of Harlem, Morrisania, Fox's Corners, Union Port, Westchester and Middletown. The fare is \$2.50; 50 cents extra for box seats. Seats may be secured at the Hotel Brunswick; and we beg to suggest that every coach-builder visiting this city during the present month, ought to consider it a business duty to engage a box seat and see how the thing is done. There are few experiences more exhilarating than a first drive behind a four-in-hand.

* * *

Several letters received by us from carriage-makers having a small local trade, express concern as to the future of their business, although the writers seem fairly well satisfied with the past and present. We fear these correspondents must have been misled by the tone of certain articles which recently appeared in one of our contemporaries, entitled "Is there a Future for the Small Carriage-maker?" Cheer up, faint hearts! The conditions leading to business success or failure have been practically the same since the world began. History shows that improvements in machinery do not foreshadow the displacement of skilled mechanics. Gigantic stock companies, with millionaire capitalists as backers, do not imply the destruction of smaller competitors—that is, so long as the latter are equally energetic and lively. On the contrary, experience teaches that machinery and increased production insure an increased demand for skilled mechanics of the higher grade; that big stock companies, making specialties of low-priced grades of work, contribute in the end to create an increased demand for the medium and higher grades of work; and, in times of business depression or revolutions in fashion or demand, the active small shops have as much the advantage over their wholesale competitors as an Ericsson monitor over a *Great Eastern*. The record of last year shows that, while nearly all the large houses suffered more or less, the small and medium shops did a good average business from January to December, with an unusual amount of repairing, at good, paying prices; and with a steady and healthful demand for substantial new work adapted to every-day service. To all local builders of small means we would add these few suggestions. First: Look to your repairing department as your mainsail in fair weather, and your sheet anchor in emergencies. It is in your repair shop that you have your best opportunity to exhibit your mechanical ability, and to attract the attention of customers who have previously bought their new work elsewhere. As the physician who wins renown as an obstetrician is certain to secure all the family practice he desires, so the carriage-shop celebrated for its skillful repair work is pretty sure to gain orders for new work as soon as it is prepared for them. Second: Be always alert and enterprising, and see to it that you keep fully abreast with the times in respect to styles and improved methods, remembering that here is where you have the advantage over your mammoth competitors, whose movements are likely, by reason of their very size, to be more sluggish. The above short sermon has been suggested by the study of the record of last year, as developed through correspondence received by us during the past two or three months.

To Wm. Moses, Brooklyn, E. D., N. Y.: Yes, we have from time to time published several lists of New-York City Tariffs of Carriage and Wagon Repairs,—the last, in chart form, appearing in the June *Hub*, 1882; but we are unable to supply any numbers of *The Hub* published previously to August last, and consequently cannot comply with your request, as we would otherwise be happy to do. Try and find your June *Hub*, 1882.

OPEN BALLOT FOR NEXT PRESIDENT OF THE
C. B. N. A.

THE Carriage Builders' National Association of the United States, now in its twelfth year, has attained a position of prominence and power which naturally renders it liable to become the target of all the pea-shooters; and such attacks it is already receiving from at least one quarter.

The stated grounds of complaint, if we understand them, are, *first*, that its officers are mainly Eastern men; and *second*, that the organization is consequently local in character.

Now, at the very start, it should be remembered that the annual election of the Association's officers is the result of vote in open meeting; and, so far as we remember, it has always been unanimous. If any member was dissatisfied with the ticket, duly proposed by the nominating committee, it was his right and duty to express such dissatisfaction in such open meeting. If the member present held his peace then, or if he failed to be present, the result which he deemed unsatisfactory was as much his fault as anybody's, and it would seem but fitting that he hold his peace forever after. Even honorary members, who have no power to vote, are always entitled to the floor when they wish to express opinions; and they are therefore equally to blame if alleged abuses have been allowed to creep in unchallenged.

But let us briefly consider the two complaints above alluded to. The first of the statements mentioned, namely: that the officers of the Association mainly belong to the Eastern States, is partly true, and partly not true. The officers elected at the last annual convention are twenty in number, and include three New-England members, seven from the Middle States (including New-York), four from the Southern States, and six from the Western States. Reference to the present membership list of the Association, as published in the last annual report, indicates that the official honors, as above enumerated, are very fairly distributed according to the relative membership in those sections, and we perceive no possible cause for complaint in this direction.

In regard to the present Executive Committee of seven, including Messrs. Stivers, Rogers, Pray, Britton, Firestone, McLear and Hooker, it is true that all these gentlemen, excepting Mr. Firestone, belong to the Atlantic States; but this cannot but be judged a proper and wise provision and an important element of strength, when we remember how frequently, and often summarily, this executive body is compelled to come together for the transaction of routine business, or for purposes of counsel in emergencies which are always liable to arise. An executive committee of seven, if composed of members living at remote points, would certainly prove unwieldy, if not wholly impracticable; and our own opinion is, that the inconvenience and expense of gathering a widely scattered committee would result in centering the powers of the body in some one member, and thereby lead to that very extreme of local and individual influence which the critics now pretend to fear. As it is now, the call of Mr. Stivers, as chairman, suffices at any time, on a few days' notice, to call together in New-York a majority of the executive forces, which are confined to three other cities, namely: Philadelphia, Wilmington and New-Haven. At their last special meeting, held in New-York on March 20th, for the purpose of adopting measures to assist the St. Louis Committee of Arrangements in reference to the approaching convention in that city, five out of seven members were present, representing all four cities, namely: Messrs. Stivers, Rogers, McLear, Hooker and Pray.

Let us now, for a moment, consider the requirements of the office of President. In the first place, it has never thus far proved a mere honorary position, but has entailed upon the holder duties and responsibilities and expenses of many kinds, which made the position so onerous that none but the hardest workers and warmest sympathizers in the efforts of the Association have ever cared to take it upon themselves. Those familiar with the history of the Association must know that it is a position which has always "gone a-begging." We never heard of any one who coveted it; and had the Western members ever offered one of their number as a victim, and had such Western member shown any willingness to be thus victimized and to assume the responsibilities of the office, we have every reason to believe that he would have received the unanimous vote and hearty thanks of the Association. If this is true of the past, we know it is still more true to-day; and we expect and earnestly hope that, at the approaching convention in St.

Louis, some Western representative will be raised to the Presidency.

The question now arises—for the future rather than the past is what now chiefly interests us—who will be the man? This seems a very proper topic for discussion from this time forward until the next election takes place. But how can it be discussed so that the results shall prove of practical value? Mere fault-finding and thumb-pointing can prove of no possible benefit in a case of this kind. A majority vote of members of the Association will finally settle the question next October; but primaries are now in order.

What is the desire of the majority of the Association as to its next President? If our readers think proper, we would like to test this question by recording in *The Hub*, next month or later, a list of such gentlemen as seem best adapted, by reason of long service or personal popularity, or business activity, or public spirit, or any other cause, to be named as Presidential candidates. With your permission, therefore, we will open in the next *Hub* an informal ballot, toward which every present member of the Association is respectfully invited to contribute a vote.

We open this proposed ballot to "Honorary" as well as to "Active" members, each of whom we now request to send us the name of some fellow-member for whom he will be willing to vote at the approaching election. Please add your own name and address, in order that we may check it off on the membership list; but we promise that the names of all voters shall be kept strictly confidential, and that the names of candidates and totals of respective votes shall alone be made public in *The Hub*.

If you approve of the above suggestion, as practicable and helpful to the Association, please immediately address and forward a letter or postal-card as follows:

Editor of *The Hub*,

323 Pearl-street, New-York.

Sir: My choice for next President of the Carriage
Builders' National Association is

Mr. _____, of _____

Yours truly,

[Signature.]

The result of this open and informal ballot for Presidential candidates will be made public from month to month in *The Hub*, until October next. Be on the lookout for our monthly bulletins of progress; and if you find any criticisms to make meanwhile, remember that our "Critics' Corner" is always open for expressions of opinion, both complimentary and otherwise, so long as they avoid unpleasant personalities.

RELATIONS BETWEEN AMERICAN CARRIAGE
BUILDERS AND THEIR WORKMEN.

BY JOHN W. BRITTON, OF NEW-YORK.

(Continued from page 39 in last number.)

DEFECTS OF COLLEGE EDUCATION AS A PREPARATION FOR BUSINESS LIFE.

If a boy understands the principles of geometry, and has had some practice in free-hand and mechanical drawing (even in a rude way), we find that when he comes into our wood-shop to learn his trade, it is equivalent to two years' shop experience to him. The kind of education our boys want, if they intend to follow business or mechanical pursuits, is not classical education. I believe that the average boy who is sent to college to acquire a classical education is ruined by the time he gets through with it. If he has any good horse-sense in him at the start, it is educated out of him. Of course, if he is a boy of genius, you can't educate him to death; he will grow even under the pressure; but if he is an ordinary boy, then good-bye to him! Whenever I find a rich man dying and leaving a large amount of money to found a college, I say to myself, "It is a pity he had not died while he was poor." When young men have applied to me for a situation, saying that they were educated at this or that college, I have had to say to them, "I don't want you, young man; you don't know anything." The man who thinks that he immortalizes himself as a benefactor by leaving money enough at his death to build a dormitory or a wing to a college, makes a mistake, I think; for the fools send their boys there, and generally to their ruin.

Of course, I would not destroy all the colleges. I would simply make them better.

SENATOR BLAIR: You would turn them to some useful purpose?

MR. BRITTON: Yes; I would simply make them better and more practical in their teachings than they are now. The best of them are already beginning to do this. Yale and Harvard are beginning to recognize that there is something besides the classics that boys ought to know. When all the colleges recognize that there are modern and useful sciences which boys should learn in order to fit them for life, then the colleges ought to be a blessing, and they will be.

TECHNICAL EDUCATION.

In the carriage-builders' trade we have been doing something to meet the need of technical education, which is now so pressing. We have recently established a technical school for the instruction of young men in our own trade, which has now been in operation for three years, and has already shown good results. I worked for several years, at every convention of the carriage-builders, to awaken interest in this subject. Finally, in the fall of 1880, we met in Chicago; and I tell you that is the place to start a boom, if you want to raise anything. There is something in the very air there that lifts men right up out of their selfishness. We raised an educational fund of about \$7,000 on the spot, and then we started our school.

But I will tell you what our trouble is now. There are but few employers who have undertaken to look after this Trade School. They do their duty as far as they can, but the trade generally forget that there is such an institution. Over and over again we have asked that they should send models to us. We have sent several circulars to the leading manufacturers, saying that our school is established and that we want models for the purpose of teaching the young men by practical demonstration, and asking contributions. As a rule, however, they put the circular in the waste basket, and we hear nothing more of it. That is the rule. To this, however, there are few notable exceptions. I only mention these facts to show you that we are all a little too indifferent as to our duties; we seem to be satisfied if we can add a new wing to our shop every year, and increase our business,—selling each year a little more than we sold last year, and so keep on making money.

SENATOR BLAIR: What is your theory as to the reason of the indifference of the trade in such matters?

MR. BRITTON: I cannot say, without implying that I deserve more credit than others. I do not say that all members of the trade are indifferent; but the great majority of them certainly are. Most men are interested first in making money. I am naturally proud of the advancement of my trade. I can remember when a carriage-maker did not amount to much. I can remember that, one time, when a carriage-maker was elected to a noted New-York club, founded by the blue-bloods—I don't know how he got in there—it was a matter of the greatest astonishment. I am anxious that my trade should have a high and recognized standing. I worked for years to establish a national trade organization. I know that in union there is strength. I know that when we established a national association, with a membership from seventeen States, and some of us went to Washington as a committee representing that association, the doors of all the departments were open to us. On a previous occasion, when we protested against an injustice which had existed for twenty-five years in New-York, our petition and protest were looked upon with indifference. It was different when we went to Washington as representatives of a live trade organization; and although the Treasury Department was very busy and could not see us when we went there individually, it managed to see us immediately when we went as representatives of this Association. And when we called at the Patent Office after three o'clock in the afternoon, and the office was closed, it made no difference; we went in, and were accorded a respectful hearing. Not only that, but one of the committee was given a patent on an application that had been rejected by all the former examiners before whom it had come. [Laughter].

The men who are to come after us in our business—those who are to be the colleagues of my son, who is now my partner,—must be educated up to the point where they will thoroughly understand and appreciate the dignity of their trade. Why, the coach-makers of London controlled the export trade of the world until they thought there was nobody else coming; but France has now won the greater part of it. Do you ask why? Because France, with her technical schools, and the carriage-makers of Paris, with their better methods of instruction, are more alive to the situation.

ONE TROUBLE WITH APPRENTICES NOWADAYS.

Speaking of the apprentice system, if we find an intelligent boy who wants to learn a trade, and he comes to arrange the matter with an employer, the chances too often are that the boy's mother will come along with him and say, "We don't get our breakfast until half-past seven, and you must make an exception in James's case." Well, we let her down easy, and simply say, "No."

A young fellow came into our office sometime ago, and said he wanted a place. He was seventeen or eighteen years of age and well educated, and I was surprised that he seemed so willing to go into a mechanical pursuit. I told him he would have to work hard and be on hand at 7 o'clock in the morning. He said, "I understand that; I will be here early. My mother is well enough off to keep a servant, and I will make the servant get my breakfast in time." He added he had been looking about in Wall-st., for a place, but had got discouraged trying to get a place in any broker's office. He worked with us until Friday night, and then left a polite message to say that he would not be able to come again, as a broker in Wall-st., who had promised if he ever wanted a boy he would take him, had sent for him. That is a fair sample of one of the influences now at work, which we have to contend against in our attempts to get apprentices.

HOW MANY HOURS SHOULD CONSTITUTE A DAY'S WORK?

I understand that one of the witnesses who has appeared before you stated that the hours of labor should be shortened. I do not think there is any need of shortening the hours of labor in any of the ordinary occupations of the mechanical classes. There are trades and callings in which there is very hard and exhausting work,—trades where men are at their best physically when they first go into them, and where they deteriorate constantly while in them. If ten hours is a fair day's work for ordinary occupations, then men in such specially trying occupations ought not to work over seven or eight hours. But I think the general idea that men work too long is fallacious, and has no foundation in fact.

SENATOR BLAIR: How many hours' work constitute a day's labor in your establishment?

MR. BRITTON: Ten hours. We have made some voluntary concessions. For instance, on Saturdays we let the men off a little earlier; and in the extreme hot weather we give them a little longer time than usual at noons. This is done voluntarily on our part.

(To be continued.)

"BEHIND THE BARS."

MARK R. LAZIER, THE TRAVELING SWINDLER, IN TROUBLE.

UNDER "Trade Gossip for the Past Month," which appears in the Office Department of our present issue, will be found the latest intelligence regarding the disposition that has been made of that curse of the carriage and varnish trades, Mark R. Lazier. Now that all is over it seems proper to make public the following detailed report of his past record, which we have gathered from various sources. A study of this record, which is a peculiarly black one, may prove serviceable as well as interesting to any reader.

Mark R. Lazier is one of the most distinguished of living Canadians. He is a native of Belleville, Ontario, where he has respectable and wealthy connections. These latter have been engaged in a long struggle to buy Mark out of the many scrapes he has got into. Lazier was first arrested in December, 1876, in Buffalo, N. Y., for obtaining money by false pretences. Matters were fixed so that he was discharged.

He was arrested immediately after on a similar charge and taken to Cleveland, O., where he also squared up.

Detective Stader, of Detroit, Mich., took him in custody on a like charge, and took him to the City of the Straits. There he gave straw bail and jumped for Canada.

Previous to this he was arrested and taken to Picton on a charge of horse stealing, but was liberated.

He was again arrested and sent to Ottawa for getting money on a bogus draft for \$75.

He squared that, and was taken in charge by Sergeant Crawford, of the London police force, for obtaining, by fraud, \$75 from McCallum, a druggist in the Forest City; but he escaped from the officer while on the train.

He was next arrested on February 17, 1877, taken to London, and convicted, a nominal sentence being passed on him.

He then returned to Belleville and remained quiet for a time. At length an officer from Woodstock appeared there with another warrant. Lazier saw him on the street, and skipped out of town. He opened negotiations for settlement from the other side, and got things settled.

Owen Sound was next heard from. Officer Pierce went after Lazier, who was arrested, but squared the bill and was discharged.

He next turned up in New-York State, representing Valentine & Co., of New-York. He victimized a number of their customers in this State, and finally Vosberg, the representative of that firm, captured him. He over-reached justice on that occasion by escaping from custody.

The next place we heard of him was in Jackson, Mich., where he was arrested by a Lansing officer for fooling with a draft for \$75, to which he had attached the name of Robert Dougall. While sleeping, handcuffed to the officer in the hotel, he quietly slipped the cuffs, and left the detective enjoying his slumbers, while he made tracks for Canada. Lazier soon afterward wrote to the officer from Windsor, apologizing for his unceremonious departure.

The rest of his course may be traced as follows: The first is a newspaper dis-

WOODWORK—continued.

New Spokes in Wheels, plain, each.....	25
New Spokes in Wheels, patent, each.....	40
Wedging Boxes in Wheels, each.....	25
New Spring-bar in Box Buggy.....	1 25 to 1 50
New Straight Perch in Buggy, ironwork included.....	4 00
New Bent Perch in Buggy, ironwork included.....	5 00
New Axle-beds, ironwork included.....	2 00 to 2 50
New Cross-bar in Shafts, ironwork included.....	1 25 to 1 75
New Singletree, ironwork included.....	1 00
One Shaft, single bend, ironwork included.....	2 00
Two Shafts, single bend, ironwork included.....	4 00
One Shaft, double bend, ironwork included.....	2 50
Two Shafts, double bend, ironwork included.....	5 00
One new Bent Pole.....	5 00
One new Straight Pole.....	4 00
One new Coach Pole.....	5 00
One new Bow, woodwork only.....	2 00
One side of new Bow, woodwork only.....	1 25
New Side-panel in Buggy, woodwork only.....	3 50
New End-panel in Buggy, woodwork only.....	2 50
New Spokes in old Hub, complete.....	4 00 to 6 00
New Hub in old Wheel, complete.....	6 50

		A.	B.
Set of new Wheels, complete : Wagon, Light, 1¼ in. Spokes,.....	30 00	20 00	
Ditto Wagon, Medium, 1½ in. Spokes.....	35 00	30 00	
Ditto Wagon, Heavy, 1¾ in. Spokes.....	45 00	35 00	
		Best.	
One set of Band Wheels, complete : Buggy, 1¼ in. Spokes,.....	40 00	25 00	
Ditto Phaeton, 1¼ in. Spokes.....	40 00	25 00	
Ditto Carriage.....	45 00	35 00	
Ditto Rockaway.....	50 00	40 00	
Ditto Coach.....	55 00	45 00	

IRONWORK.

One set new Axle-arms and Boxes, Wheels $\frac{3}{4}$ to $1\frac{1}{4}$ in.	8 00 to	12 00
One new Axle-arm and Box, Wheels $\frac{3}{4}$ to $1\frac{1}{8}$ in.		3 50
One new Axle-arm and Box, Wheels $1\frac{1}{4}$ to $1\frac{1}{2}$ in.		4 00
Setting Axles, each.....		1 50
New Spring, $1\frac{1}{4}$ in., 4 plates	4 00 to	5 00
New Spring, $1\frac{1}{4}$ in., 5 plates	4 50 to	5 50
New Main-plate in Spring	1 50 to	2 00
New other Plate in Spring	75 to	1 50
Welding Main-plate in Spring	75 to	1 50
Welding other Plate in Spring	50 to	1 00
New Carriage-bolts, each	10 to	15
New Clip King-bolt		1 50
New Jack Clip-bolts, each.....		25
New T-head Singletree-bolts, each.....		30
New Axle-clips, each		25
Mending Shaft-irons, each.....		75
One new Jack-clip and Shaft-eye		1 50
Two new Jack-clips and Shaft-eyes.....	2 50 to	3 00
Mending Perch-plate	2 00 to	3 00
Mending Stays.....	75 to	3 00
One set Steel Tires, $\frac{3}{4}$ to 1 in.		8 00
One set Iron Tires, $\frac{3}{4}$ to $1\frac{1}{8}$ in.....	7 00 to	8 00
Setting 4 Tires, Spring Wagon		2 50
Setting 4 Tires, Carriage or Buggy.....		3 00
Setting 4 Tires, Coach		4 00
Setting 1 Tire, Spring Wagon.....		65
Setting 1 Tire, Carriage or Buggy		75
New set of Wheels, complete, for Carriage or Buggy, according to grade of Wheels	24 00 to	35 00
Coal, by hand blast, per hour, 5 lbs.....	Estimate.	
Coal, by power blast, per hour, $4\frac{1}{2}$ lbs.	Estimate.	
Time estimate : Fire No. 1, on repairs, 1st hour, \$1 ; each additional hour, Ditto Fire No. 2, on repairs, 1st hour, 75c. ; each additional hour.....		75 50
	Iron.	Steel.
New set of Axles, Buggy	\$12 00	16 00....
Ditto Carriage.....	15 00	18 00....
Ditto Rockaway.....	20 00	25 00....
Ditto Coach	25 00	35 00....
Ditto $1\frac{1}{4}$ Wagon	12 00	....
Ditto $1\frac{1}{2}$ Wagon	15 00	....
Ditto $1\frac{3}{4}$ Wagon	20 00	....
	Iron.	Steel.
New set of Tires, Buggy	\$7 00	8 00....
Ditto Carriage.....	8 00	10 00....
Ditto Rockaway.....	10 00	14 00....
Ditto Coach	12 00	16 00....
Ditto Wagon	7 00	....
Ditto Wagon	9 00	....
Ditto Wagon	12 00	....
New Axle-clip		
New Box-clip		
New Spring-clip		
New Saddle-clip.....		
New Clip King-bolt		
Splicing King-bolt.....		
Welding King-bolt.....		

PAINTING.

Painting Gear and Varnishing Body, Coach.....	40 00
Painting Gear and Body, Coach.....	60 00
Burning off Body and Re-painting, Coach.....	75 00
Painting Gear and varnishing Body, Falling-top Carriage.....	15 00
Painting Gear and Body, Falling-top Carriage.....	20 00
Burning off Body and Re-painting, Falling-top Carriage.....	25 00
Painting Gear and varnishing Body, Phaeton or Box Buggy.....	12 00
Painting Gear and Body, Phaeton or Box Buggy.....	15 00
Burning off Body and Re-painting, Phaeton or Box Buggy.....	20 00
Varnishing Body and Gear.....	10 00
Painting Gear and varnishing Body, Jagger Wagon.....	15 00
Painting Gear and Body, Jagger Wagon.....	17 00
Varnishing Gear and Body, Jagger Wagon.....	12 00
Painting Gear and varnishing Body, Four-passenger Rockaway.....	35 00
Painting Gear and Body, Four-passenger Rockaway.....	40 00
Burning off Body and Re-painting, Four-passenger Rockaway.....	55 00
Painting Spring-wagons.....	10 00 to 15 00

[NOTE.—The numerals and abbreviations used to distinguish the following additional items of painting, indicate the following jobs, namely: 1. "P," Plastering; 2. "TO," Pumicing down, touching up and varnishing; 3. "CO," Sandpapering, coloring and varnishing; 4. "CCO," Cutting close or burning off, painting, coloring and varnishing.]

		Light Wagon.	Heavy Wagon.	Jagger.	Buggy.	Surrey.	Carriage.	Rockaway.	Coach.
1. "P,".....		..	..	..	..	..	..	..	..
2. "TO,".....	\$8 00	10 00	12 00	12 00	13 00	13 00	25 00	35 00	
3. "CO,".....	10 00	13 00	15 00	15 00	16 00	17 00	40 00	60 00	
4. "CCO,".....	15 00	18 00	18 00	18 00	21 00	25 00	65 00	90 00	
Scraping Gear, extra,	3 00	4 00	3 00	3 00	3 00	3 00	5 00	6 00	
Platforms,additional,	..	5 00	5 00	5 00	5 00	5 00	6 00	8 00	
Lettering : painted plain.....	per foot							15	
Ditto, painted and shaded.....								25	
Ditto, painted, shaded and ornamented.....								40	
Ditto, gold.....								50	
Ditto, gold and shaded.....								75	
Ditto, gold, shaded and ornamented.....								1 00	

TRIMMING.

New Rubber Top, Buggy.....				\$25 00
Ditto, Leather, Buggy.....				35 00
Ditto, Leather, Carriage.....				60 00
Ditto, Rubber, Carriage.....				40 00
New Side Curtains, Rubber, per pair.....				4 00
Ditto, Flock, per pair.....				6 00
Ditto, Rubber, per pair, lined.....				8 00
Ditto, Leather, per pair, lined.....				11 00
New Back Curtains, Rubber, complete.....				2 50
Ditto, lined.....				5 00
Ditto, Leather, lined.....				6 00
Splicing one Bow.....				75
New Leather on Side where Bow has been Spliced.....				1 00
Trimming Shafts, Complete.....	1 50 to			3 00
New Top on One-horse Spring-wagon, Bows and Rubber, complete	20 00 to			25 00
New Top in Cloth Cushion.....				2 50
Ditto, Carpet in Box Buggy, Brussels.....	2 00 to			3 00
Ditto, Carpet in Box Buggy, Velvet.....	2 50 to			3 50
Ditto, Slip-lining in Phaeton or Box Buggy, according to quality	4 00 to			7 00
Ditto, Slip-lining in Coach, all through.....				25 00
Ditto, Top-props, each.....				1 25
Ditto, Top-prop Nuts, Japanned, each.....				30
Ditto, Plated, each.....				35
Ditto, Buggy Apron.....				3 50
Ditto, Bow Socket, steel.....				2 00
Ditto, Whip-socket.....				75
Re-covering Buggy Dash, leather.....				4 00
Ditto, moleskin				3 00
Ditto, Phaeton or Carriage Dash, leather.....				5 00
Ditto, Fenders.....	3 00 to			4 00
New Aprons.....	3 00 to			5 00
New Wagon Curtains, side, rubber colored, rubber and lined, leather and lined.....	2 00 to			3 00
New Wagon Curtains, back.....	3 00 to			3 75
Ditto, side, pair.....	4 00 to 7 00 to			11 00
Ditto, Buggy Curtains, back.....	3 50 to 5 00 to			7 00
		Seamed.	Bound.	
New Slip Lining, Buggy.....	5 00			6 00
Ditto, Phaeton.....	6 00			7 00
Ditto, Carriage	6 00			7 00
Ditto, Rockaway.....				10 00
Ditto, Rockaway and deck.....				18 00
Ditto, Coach Lining.....				35 00
		Cushion.	Fall.	Both.
New Cushion and Fall, Wagon.....	3 50	50		4 00
Ditto, Buggy.....	6 00	2 00		8 00
Ditto, Phaeton.....	7 00	2 00		9 00
Ditto, Jagger.....	5 00	1 00		6 00

TRIMMING—*continued.*

	Smith-work.	Trimming.	Total.
New Dash, Wagon.	3 00	4 00 split	7 00
Ditto, Buggy.....	3 50	4 50 "	8 00
Ditto, Phaeton.....	4 50	7 00 "	11 50
Ditto, Coach.....	5 00	9 00 grain	14 00

[NOTE.—The June *Hub* will contain the "Tariff of Repairs for Business Wagons," adopted by the same society.—EDITOR.]

HOW TO KEEP WELL.

OR AILMENTS COMMON AMONG CARRIAGE MECHANICS, WITH HINTS HOW TO CURE THEM.

BY A NEW-YORK PHYSICIAN.

[An abstract of suggestions verbally communicated to our Editor, by Dr. Edward L. Partridge, of New-York, in response to inquiries addressed to him.]

CHAPTER II. BLACKSMITHS.

WE understand that it is the usual custom of carriage-builders to place the blacksmith-shop beneath the level of the ground, having under it no cellar or even a floor of any kind, and in a place ill adapted for light and ventilation, and from its location likely to be damp. Were we not aware of these facts, we should say that the blacksmith had before him conditions unusually favorable to health. Our remarks will be mainly devoted to results which might follow such unfavorable conditions. The physical exercise called for on the part of the blacksmith, owing to the nature of his occupation, is of a kind that should improve the tone of every muscle and every organ of his body, provided that he is methodical and does not permit excessive fatigue.

Owing to his liability to alternating heat and cold air draughts, he should, on all occasions, wear flannel next to the skin, adapting its weight to the season of the year.

The blacksmith is liable to certain injuries, more especially bruises and burns. For advice regarding the management of such conditions, we would refer the reader to hints given under the same head to woodworkers, in the last number of *The Hub* (page 40).

The blacksmith is liable to suffer from strained muscles and strained joints. To prevent these, he should, if possible, avoid *suddenly* violent exertion; and to avoid soreness of the muscles following exertion, if the latter has caused great warmth and perspiration, he should avoid cooling off too suddenly, which would arrest perspiration in a harmful way.

A strained joint or muscle should promptly receive rest to that degree which seems required. Liniments, such as chloroform or soap liniments, will relieve muscular soreness, especially if applied with continued rubbing; but it must be remembered that neither external nor internal treatment of these and many other conditions can be of great efficiency without the common sense treatment of appropriate rest.

The eyes of the blacksmith are frequently injured by the light and heat of the forge. In certain kinds of work where accuracy and vision is necessary regarding color, the best that can be done is to be methodical, and to so arrange the work that the periods for this close use of the eyes are succeeded by suitable periods of rest. At other times the wearing of colored glasses, or goggles, would not interfere with work, and would do much toward preventing eye troubles.

The injurious effects upon the eyes of the blacksmith may be of the nature of impairment of vision, or may be congestion and inflammation of the edges and under surfaces of the lids, producing a sensation as of the presence of sand. For this latter consideration, bathing of the eyes and opening of the lids in a solution of borax and water, or of weak salt and water, has a soothing and strengthening effect.

The blacksmith's feet are liable to give out, owing to constant standing, often upon damp stone or earth floors, the earliest symptoms being pain and swelling in the ankles. Upon examination of the latter, we shall find numerous enlarged varicose veins. To avoid the serious condition that may be reached, it is advisable, when this difficulty is first noticed, that the leg should be bandaged with long flannel bandages, from the foot up to the knee, or be supported by a properly fitted stocking of elastic webbing. Varicose veins have always a tendency to grow worse. While rarely dangerous by reason of rupture or other accident, they can be the source of much pain and discomfort throughout an entire life, and they therefore deserve early and suitable attention.

The blacksmith's lungs are generally good, and, owing to his occupation, he should have a good appetite if in good health. A well-known carriage-builder once remarked in our presence: "Any blacksmith who is not good for three hearty meals each day, had better prepare his coffin."

We can well understand that rheumatism must be very common among carriage blacksmiths, after knowing the character of the shops in which they usually work, and also knowing the liability of the worker to become over-heated and be exposed to draughts. This condition has already been treated of in our remarks upon the woodworker's ailments.

[To be followed by Chapter III, on Ailments Common to Painters.]

THE HUB DICTIONARY OF CARRIAGE TERMS.

BY THE EDITOR, ASSISTED BY F. B. PATTERSON, ALBERT KEHRL, JOHN D. GRIBBON, J. A. VAUTIER, H. M. DUBOIS, E. COMBY AND OTHERS.

BRITTON WAGON.—A modification of the Goddard Buggy, but lightened, modernized and adapted to road use. It was designed by John W. Britton, of New-York; and the first of this pattern, built in 1872, was made for his private use.

CARROCIO.—(Italian). A four-wheel war-car used by the Florentines, corresponding to the Israelitish ark. It bore aloft on a mast the city's standard and a crucifix; was painted vermilion, and drawn by two, four or six bullocks, covered with scarlet cloths. See Longfellow's *Dante*, Vol. I, p. 298.

COAL-BOX BUGGY.—The successor of the Yacht Buggy, being the result of an attempt to introduce a radical change, and produce a wagon less sporting-like in its character. It was made with the body very high behind, about 12 inches, and cut down at the front as low as possible, leaving only the sill. It had a straight square dash, and was generally made without a top. It was designed by Jas. W. Lawrence, of Brewster & Co., of Broome-st., New-York, about 1862; and was first introduced as "The Gentleman's Wagon," under which title it was advertised in the public prints. This induced a rival house to introduce a similar Buggy and advertise it as "The Coal-box," intended in derision of the name used by the inventor.

CORNING WAGON.—A form of Buggy belonging to the border line between the Square-box and Coal-box patterns, having a square-box body, with that part of the side-panels forward of the seat cut away. It has no Stanhope-pillar, but is always made with a top. It was first built by Brewster & Co., of Broome-st., New-York, in 1875; and it was so named because the first of the pattern was sold to Erastus Corning, of Albany, N. Y.

DEVIL'S COACH-HORSE.—A name applied in the West of England to the cock-tailed beetle.—BLACKMORE, in "LORNA DOONE."

HOWELL GIG.—A form of Gig Phaeton first designed by C. M. Britton, of New-York, in 1872, and so named on account of the first vehicle of this pattern having been built to the order of Howell, the celebrated New-York photographer of that day. Its characteristics are the adaptation of a Gig body to a Phaeton gearing, and a general lightening of all the parts, to render it suitable for road use.

MONITOR BUGGY.—A variation from the Square-box Buggy, having a deep sunken bottom, first introduced by Jas. W. Lawrence, about 1859.

PIANO-BOX BUGGY.—A variation from the Square-box Buggy, having round corners and a molding top and bottom, which was first introduced by R. M. Stivers, of New-York, about the year 1855.

"STEPHEN, DRIVING."—In the Finnish towns, every one goes out driving in the afternoon of St. Stephen's Day, and this custom is called "driving Stephen."

SURREY WAGON.—An adaptation of the Dog-cart body to a four-wheel Road Wagon, first introduced by Jas. B. Brewster & Co., of New-York, in 1872.

TRAY-BODY BUGGY.—One of the early forms of the Buggy, which was perfected by George Watson, of Philadelphia, as early as 1840, and ten years later he exhibited one of this pattern at the first World's Fair in London, which, after its return, was bought by Col. Hall, of New-York, the noted sporting man, and owner of *Lantern* and mate. It was so called because of the resemblance of the shape of the body proper to the old-fashioned servant's tray. The boot was leather-covered. The hanging bars and the back beds were elaborately carved, one bed sometimes requiring the labor of a rapid carver for two days. Its successor was the Yacht Buggy, *q. v.*

"WAGONER GENERAL, THE."—The nickname by which Gen. Daniel Morgan, of Virginia, was known during the Revolution, on account of his early occupation having been that of a wagoner. See Dr. Alex. Jones's "Cymry of '76," page 21.

WHITECHAPEL, OR WHITECHAPEL CART.—An English Cart for gentlemen's use. The name is derived from its having originated as a butcher's Cart known as the "Whitechapel," afterwards modified and intended as a gentleman's vehicle. The first Whitechapel Cart was introduced in this country about 1867 by Burton Mansfield, of New-York, and was built by Peters & Sons, of London.

WHITECHAPEL WAGON.—An adaptation of the body of the English Whitechapel Dog-cart to a four-wheel Road Wagon, first introduced by Brewster & Co., of Broome-st., New-York, about 1870.

YACHT WAGON.—A modified form of its predecessor, the old "Tray-body Buggy" (*q. v.*), in which an attempt was made to follow the lines of the modern yacht. The leather boot, as used on the Tray Buggy, was supplanted by a paneled boot. It was designed by Jas. W. Lawrence, of Brewster & Co., of Broome-st., New-York, and first built in 1859. It was succeeded by the Coal-box Buggy, *q. v.*

EDITORIAL RESPONSES TO CORRESPONDENTS.

To *Fanchert fils, Montreal, Can.*: We do not know of any maker of wagon gears located at Concord, N. H.

To *W. S. & Co., Fort Plain, N. Y.*: The leading builders of street-sprinklers in this vicinity are W. Westerfield & Son, 177 Prince-st., New-York.

To *A. C. McRae, Brockville, Ont.*: Only one handbook specially devoted to carriage trimming has ever been published, namely: "The Carriage Trimmers' Manual and Guide-Book," by Wm. N. Fitz-Gerald, New-York, 1881. We can supply you with a copy for \$3.00, post-paid. If any questions arise which you do not find therein covered, briefly state them to us, on separate slips of paper, and we will take pleasure in answering them through our "Trimming-shop Department."

To H., New-York City: The water-tight flooring in Brewster & Co.'s varnish-rooms, concerning which you inquire, was put down by E. H. Wootton, proprietor of the New-York Mastic Works, 35 Broadway, New-York, who, on application, will furnish all needed particulars.

To M. and R., Canandaigua, N. Y.: Gum hubs come from further South, and the New-York market is hardly the place to look for them. If you will address Howard M. DuBois, of the Union Spoke and Rim Works, Philadelphia, we think he will be able either to fill your order, or refer you to some one who can.

To Wm. T. Downs, Huntington, N. Y.: We are indebted to Messrs. Healey, Williams & Co., who put the so-called "Washington Coach" in usable shape on the occasion of its appearance in the public parade in New-York on Evacuation Day, 1883, for the name and address of its present owner, which are as follows: Capt. Benj. Richardson, Lincoln Cottage, 65 E. 125th-st., near 4th-ave., New-York City.

To C. A. Bedell, Dayton, O.: Our fire last summer destroyed all our notes relative to our revised "Hub Dictionary of Carriage Terms," and prevented our publishing the pamphlet edition which we advertised. We have since been at work slowly gathering corrections and additions to the installments already published in *The Hub*, and the revised dictionary will appear as our serial in our *Hub Almanac Quarterly*, beginning with the July number of this year.

To C., London, Eng.: Gas tire-heaters have long been used in some of our best carriage smith-shops, and have proved entirely satisfactory. The heat they give is regular, and it can promptly be raised or lowered to answer immediate requirements. The "lead bath" is thought by some to be the tire-heater of the future, and we understand it has proved a success in connection with work similar to tire-heating; but we are not aware that any carriage-builder has yet adopted it.

To W. and L., San Francisco, Cal.: The article by Mr. H. M. DuBois, to which you refer, on the subject of improved dry-houses for carriage timber, appeared in *The Hub* in two installments, under the title of "The Modern Dry-house, and its Adaptability to Carriage Timber;" and will be found in the September *Hub*, 1883, page 359, and the October number, page 426. We are sorry that we cannot forward these numbers to our correspondent; but we have only our bound file.

To C., Correspondent Technical School, Columbus, O.: The application of skim-milk is the readiest means of "fixing" your charcoal drawings, so that they may not be blurred while in the mails; but you must be careful to remove all particles of cream, and the milk must be flowed uniformly over the entire sheet. A safer method is to use the "Charcoal Fixative," specially prepared for artists' use by Henry Leidel, of No. 341 Fourth Avenue, New-York, which is intended to be sprayed upon the paper.

PROBLEM DEPARTMENT.

[This new department has been opened in compliance with the request of a valued contributor. Correspondence is requested.—EDITOR.]

STANDARD LENGTH OF BUGGY POLES.

WHITE HALL, FREDERICK CO., VA., April 2.

TO THE EDITOR: Please give me the standard length of a carriage or buggy pole, measuring from the doubletree to where the neck-yoke works.

R. B. HENSELL.

ANSWER.—The standard length of a wagon pole is 8 ft. 8 in., measuring from the evener-bar to the end of the yoke-stop on the pole end. Horses taking an unusually long stride when speeding may require an additional length of 4 to 6 in.

CRITICS' CORNER.

[In opening this new department of our magazine, and requesting contributions, the Editor begs to remind correspondents that *criticism* means "the art of judging with propriety of the beauties and imperfections of a production." No mere fault-finder need apply.]

DESIGN OF FIFTH-WHEEL CRITICIZED.

NEW-YORK, April 9th.

TO THE EDITOR: You describe in your January number (page 640) what you call an "Improved Fifth-wheel for Landaus," and speak of it as novel. I made the same thing in 1869, but abandoned it. It has no value.

Yours truly,

BROWN.

NOTE.—The first part of this criticism seems legitimate, so long as our correspondent is sure of his facts; but we must protest against the latter part, where Brown sweeps the subject aside by the statement that "it has no value." It is always easy to make a statement of this kind; but, to give it any value, it should be accompanied by reasons why. Until we are in receipt of such reasons, we see no cause for Mr. Baird to give up the use of the fifth-wheel which he has described to our readers.

DOMESTIC RELATIONS OF THE WORKING CLASSES.

DEPARTMENT OF PUBLIC SCHOOLS,
GLOUCESTER, MASS., April 7th, 1884.

TO THE EDITOR—DEAR SIR: I was greatly interested in Mr. Britton's ideas on the "Domestic Relations of the Working Classes," as published in the February *Hub* (page 719), and particularly pleased with his pungent and incisive statement of the underlying causes which degrade the working classes. I have long been convinced, from observation, of their truth. The only way to better the workingman's condition permanently is to improve his home, and this can only be done by a change in our educational system. From this point of view, industrial training for boys is even less needful, I think, than domestic training, which should be particularly thorough and practical for girls. I take pleasure in sending you a copy of my last school report. The discussion of this topic was necessarily limited, but you will see that my ideas agree in the main with Mr Britton's. I am very truly yours. M. L. HAWLEY, Sup't.

FULL PLATING PERCHES ON LIGHT WAGONS.

BALTIMORE, MD., April 13th.

EDITOR OF THE HUB—DEAR SIR: I have just read your remarks in the April *Hub* in which you give a caution against full plating the perches of light wagons; and I fully agree with you.

In my experience I have found that, when they are plated the full length, they are always apt to break, apparently by reason of too great stiffness or rigidity; and, when this occurs, it does so at the point where the most resistance is offered, which is naturally at the fifth-wheel.

I would add that the chances of breaking at that place are further augmented if the holes connecting the plate and fifth-wheel to the perch are not perfectly true, and also if the burning iron is applied too freely, which is injurious to the perch if the perch-plate does not extend the full length of the same, and still more so when a plate runs the full length. I have therefore abandoned the plating of the perch throughout for some time past. At present I use short plates at both ends, thus giving the perch freedom of action in the center.

As a matter of course, the perch or perches must not be of cross-grained hickory, but of tough and straight-grained wood. Yours truly, T.

THOUGHT TO BE IMPRUDENT.

CHICAGO, ILL., April 12.

TO THE EDITOR: I can't help thinking it was rather imprudent for you to publish in the last *Hub* (page 36), a table of fire losses, showing such wholesale destruction of carriage shops during 1883. The figures have evidently been compiled by you with great care, and they have interested me very much; but if insurance men should get hold of them, they might have a bad influence on the rates charged us.

Please pardon the suggestion, but this thought has come to me in conversation with my partner, and it may be that others have had the same thought, and that you may thus, without thinking of it, lay yourself open to criticism. I do not mean this as a criticism, but as a friendly hint; and I beg you to take it in the same spirit in which it is offered. Yours with best wishes, T.

ANSWER.—This friendly suggestion from our Chicago subscriber is received with thanks. We duly appreciate the contingency he mentions, and we duly considered all sides of the question before making public the table alluded to. The results reached by us in our investigations were surprising and unwelcome; but, in our opinion, this was an instance where it was our obvious duty to present the facts, however unwelcome, in order that they might be weighed and duly utilized by the trade in preparing for the future.

We are sure our correspondent will understand that it was far from our wish to play the part of the heedless agitator, who stirs up every stagnant pool he finds, for the mere pleasure of so doing. Here were statistics, known alone to us, which we deemed of grave importance to the trade—unpalatable morsels, it is true, but such as we felt the trade ought to be in possession of. We duly called attention to the fact that 1883 was an exceptionally disastrous year, and this we hope to prove subsequently by further tables showing past and future records.

Our opinion, formerly expressed, that any carriage-builder who pays more than 2 per cent. premium, pays for some negligence of his own or his neighbors, is by no means unsettled by this record; and we shall not consider the publication of our first fire table imprudent, even if we have evidence that it has led some insurance company to insist upon greater precautions against fire being taken by its patrons. If certain proprietors are careless in the management of their shops, thereby tending to emphasize the hazards of the business in the eyes of insurance companies, and enhancing current rates, we cannot but think it would be for the best interests of the trade at large, and for all concerned, if the insurance companies should give all such a thorough waking up to the importance of the situation.

Even if the publication of our showing should cause a few careless ones to have their premiums temporarily doubled or quadrupled, this might lead to lasting and profitable results to the trade whose best interests we endeavor to represent.

DINNER-HOUR.

"A little nonsense, now and then,
Is relished by the wisest men."

AM I A SCOT, OR AM I NOT?

If I should bring a wagon o'er
From Scotland to Columbia's shore,
And by successive wear and tear
The wagon soon should need repair;
Thus, when the tires are worn quite through,
Columbia's iron doth renew;

Yet Science doth confirm the change;
And since I have the truth been taught,
I wonder if I'm now a Scot?
Since all that came across the sea
Is only my identity.

—WILLIAM TAYLOR, in *Scientific American*.

"THIS STAGE COACH OF THE SOLAR SYSTEM."

NOBODY is in a position to say that we have yet beheld either the last or the worst of the present series of earthquakes. During the last



FOLLOWING THE HOUNDS.—BY GRAY-PARKER.

Likewise each fellow, hub and spoke
Should be replaced by Western oak;
In course of time down goes the bed,
But here's one like it in its stead.
So bit by bit, in seven years,
All things are changed in beds and gears,
And still it seems as though it ought
To be the one from Scotland brought;
But when I think the matter o'er,
It ne'er was on a foreign shore,
And all that came across the sea
Is only its identity.
I came, a Scotchman, understand,
By choice, to live in this free land,
Wherein I've dwelt, from day to day,
'Till sixteen years have passed away.
If physiology be true,
My body has been changing, too,
And though at first it did seem strange,

five years this stage coach of the solar system, called the earth, has several times rudely reminded its swarming billion and a half of passengers that, while it bears them along so smoothly on its easy axle, and encounters neither ruts nor rough places in its noiseless road, it can of itself, on occasion, shake them up and make them uncomfortable. And as there are no stations and no jumping-off places on the journey through space, the earth's passengers must make the best of it. If their coach goes to pieces, there is no help for them.—*N. Y. Sun*.

DE pusson what tries ter make more money den his neighbors will always find somebody what hab got a leetle more money den he has. I don't keer how fast a man walks along de road, he'll constantly see somebody jes ahead ob him.

FATE OF LAZIER, THE VARNISH SWINDLER.

PERMISSION has been given us to make public the following report addressed to the Committee of Varnish Makers by Austin Huntington, Esq., of New-York, the counsel selected to represent their interests at the trial of Lazier, the notorious varnish swindler, held at Simcoe, Canada, on April 7th, before Judge Armour:

To Committee Representing the Varnish Trade of the United States: C. O. Wolcott, Esq., Chairman, and G. W. W. Houghton, Esq., Secretary:

GENTLEMEN: I have the honor to report as follows, in regard to the Lazier matter:

On March 5, 1884, I received word that Lazier was in jail at Simcoe, Ontario, awaiting the April assizes for trial. I at once left for Simcoe, and upon my arrival visited the jail and saw Lazier. He answered in all respects the description of the man sought, being about 5 feet and 5 or 6 inches in height, 26 to 32 years of age, slight in build, with sandy hair, mustache, and slight side-whiskers; very gentlemanly in appearance and in manner. I found that the authorities had no power to compel him to sit for a photograph; and, although every facility was given us to obtain one surreptitiously, repeated attempts failed, owing sometimes to the shrewdness of Lazier, and again to the darkness of the jail-yard. I succeeded, however, in obtaining Lazier's signature, under the alias of C. H. Spicer, from the hotel where he registered at the time he made his Simcoe victims; and, on comparing it with the many swindler papers in my possession, I found the writing identical.

All doubts as to Lazier's identity with the swindler I was seeking, being thus removed, I consulted with the county officials as to the best means of bringing the criminal to justice, the chief aim being to prevent his friends from buying him off, as they had done so many times before. I finally decided that the safest course would be to advise the offering of rewards for his conviction. I next saw the Simcoe victims, and urged them to prosecute; and also took measures that I should be informed of any moves made by Lazier's friends. I then returned to New-York. The rewards were immediately offered and widely circulated.

Between the time of my visit to Simcoe and the trial, which took place on April 7th, every influence which social position and wealth could exert, was employed to defeat the ends of justice. The Crown Attorney, Crown Counsel, and the Judge were all pleaded with. Representations were made to them that the prosecution was the result of police spite, and that until Lazier stopped paying them, they left him alone; that Lazier had led a respectable life for the last four years, etc. All of this I was enabled to overthrow by the documents in my possession, and by bringing to Simcoe a carriage-builder, Mr. Peter Lammerts, of Niagara Falls, N. Y., who identified Lazier as having swindled him in December last. Then attempts were made to settle with the victims, and a check was even offered the complainant while on his way to the Grand Jury room. But the promised rewards had their effect, and their offers came too late.

Finding that there was no chance of escape remaining, Lazier pleaded guilty to the charge of obtaining money from Coates under false pretenses, hoping thereby to secure a mild sentence. But Lazier's record had been too clearly exposed, and the Court realized fully the man with it had to deal.

Judge Armour, in pronouncing sentence, said substantially as follows: "You are a young man of respectable connections, well educated, and of good abilities. You could readily have succeeded in any honest business, but, instead, have seen fit to devote yourself to a career of crime. Although you are to be sentenced only for the present charge, I cannot pass over the information which has been given me that this is only one of many crimes committed by you in this country and the United States. This is no case for clemency, and I intend to impose upon you the longest sentence which the law allows me. The sentence of the Court is, that you be confined in the Kingston Penitentiary for the term of three years."

Lazier, who had exhibited no emotion during the trial, fainted while he was being removed to the jail. On April 9th he was taken to Kingston.

A presentment was also to have been made to the Grand Jury on a charge of forgery, but as the chief witness, Mr. Baylis, of Montreal, did not appear on the day for which he was summoned, action thereon has, for the time being, been delayed. He will, however, probably be tried on this charge in May.

To conclude, I will state that, but for the prompt and energetic action of the United States varnish makers, I am firmly convinced that Lazier would yet be at large and preying upon the community. Great credit should also be given to J. H. Ansley, Esq., the Crown Attorney of Norfolk County, Ontario, who was most unflinching in the discharge of his duties; to Benj. Clark, Esq., the Chief of Police of Simcoe, who rendered me every assistance in his power; and to Hugh McKinnon, Esq., the Chief of Police, of Belleville, Ontario, who for years, despite the calumny of Lazier's aristocratic friends, has striven unceasingly to bring the rascal's career to a close. Due honor also should be given to Judge Armour, who, by the severity of his sentences, has rendered his name a terror to criminals throughout the Dominion of Canada.

Congratulating you upon the success which has crowned your efforts, I beg to remain

Yours very respectfully,
AUSTIN HUNTINGTON,
Counsel for Committee U. S. Varnish Makers.

165 BROADWAY, NEW-YORK CITY, April 19th, 1884.

ONE HUNDRED YEARS AGO there was but one public carriage in New-Haven, so that the business at that time could not have been very extensive. In the year 1794 John Cook initiated the business of carriage manufacturing in the city. In 1810 James Brewster erected a carriage factory which laid the foundation of the great business carried on by his successors. In 1820 there were but 34 mechanics employed in the State of Connecticut, producing carriages to the value of \$63,575. Most of them were made in New-Haven,



CORRESPONDENCE.

FLY-LEAVES FROM A TRAVELER'S NOTE-BOOK.

VII. LOCALITY: NORTHERN PENNSYLVANIA AND NEW-YORK.

EDITOR OF THE HUB—DEAR SIR: I will now give you a few items of trade news from such points in New-York State as I have recently visited, starting at Dunkirk and working East. I will, however, take en route, a few towns in Pennsylvania that I visited, which lie on the Lake Shore Road.

FAIRVIEW, PA., is a small town, 12 miles from Erie, and has but one shop, that of Fargo & Gardner. Mr. Fargo has been there in business for some 12 years. About three years ago he took as a partner, Mr. Gardner, who will be remembered as having been on the road for the old firm of Fowler & Sons, of Buffalo, N. Y. Fargo & Gardner are doing a good business in fine light work, and also have a good sleigh trade. They made and sold some extra fine sleighs this last winter. They have a good trade in Erie, which is a good carriage market, although but little fine work is made there. Both partners are good mechanics and good business men, and they are entitled to success.

AT ERIE, PA., is John Siegle, doing business in the shop formerly occupied by the Erie Carriage Works. He has a good repair trade, and makes some good new work, mostly on orders. He is a good mechanic and hard worker, and is doing well.

Lemas Brothers are also doing a large repair business, and some new light work, but mostly heavy business wagons, for delivery of goods, etc. They are a good firm, and no doubt prospering.

There are in Erie two or three other firms handling heavy and light work made elsewhere, besides several small shops doing general jobbing. Mr. Gray, formerly of the Erie Carriage Works, still carries a good stock of wagons and some light work for sale, and is doing fairly well.

AT NORTHEAST, PA., are Fromyer Bros., who have a shop near the depot and opposite the Palace Hotel. They are energetic and pushing young men, and have made money. One is a blacksmith and the other a painter, and both are always hard at work. They have a good repair trade, and make considerable spring-wagon work and fine light carriages, besides carrying a small stock of low-price work which they buy to fill the demand for lower grade work than they care to make in their factory. They are doing well for the times, and keep their business snug.

DUNKIRK, N. Y.—I now cross the line into Western New-York State. At Dunkirk we find R. Mulholland who has been there in the carriage business some ten or twelve years, and has built up a good trade in fine light work, and his carriages are second to none made in Western New-York. He is a popular business man, and was Mayor of the city for two terms. He is the patentee of the well-known Mulholland Spring, and President of the Mulholland Spring Co., at Dunkirk. This spring is becoming justly popular with the carriage trade, not only in New-York State, but in the West. I wish him all the success that his energy and ability so justly entitle him to.

AT FREDONIA, N. Y., are two good firms, namely, Day & Prushaw and Herman & Reuther.

Day & Prushaw are of the old firm of Taylor, Day & Co., whose years ago controlled an important trade in a patent Buckboard Wagon that was sold largely in the oil country. Like many other new things, it had its day, and gave way perhaps to the two-wheel cart that now has so large a sale all over the country. Day & Prushaw are now making the usual variety of carriages, and doing a good, safe business. They are fair, square dealers, ma' e excellent work, have made money, and are taking business and the world easy.

Herman & Reuther have been in business together some ten or twelve years, are excellent mechanics, and have a good trade both in jobbing and new work. They, too, have been successful, make good work, and stand A No. 1 as prompt, safe business men. We find such firms always succeed.

AT LAONA, N. Y., one mile from Fredonia, is James Thompson, who is doing a small business both in new work and general jobbing, but finds his business steadily increasing. He will continue to do well, we have no doubt.

AT BUFFALO, N. Y., we find J. C. Harvey, late Harvey & Wallace. Mr. Harvey, since the death of Mr. Wallace, has had his brother from Concord, N. H., with him. His work is excellent, and although he is not doing as large a business outside of the city as in former years, he no doubt does all he desires, as he is getting along in years, and naturally enough, no longer cares to crowd business as many younger men do.

Geo. Warner's is one of the old shops in Buffalo. He does a nice business, mostly city trade and general jobbing, and makes as good work as any one in Buffalo.

Bains & Perrine, late Bains & Fisher, are doing quite a trade in fine work of their own make. They have a new repository, the finest in the city. They had a large trade last winter in fine sleighs, many of them extra fine, which brought high prices. Charlie Snyder, formerly with Harvey & Wallace, is now with this firm; he has a large acquaintance with the city trade, is justly popular, and will no doubt do the firm much good.

Miller Brothers are another old Buffalo firm, who do a good business, and are very popular. One of the firm is a member of the Board of Aldermen.

Michael Miller has a good trade in heavy business wagons, and a large repair trade. He is evidently prosperous.

Lesswing & Stine are on Broadway, near Ellicott-st., where they have a large, roomy shop, and are doing a fine business in general jobbing, besides making heavy business wagons and trucks, mainly to order. They are excellent mechanics, hard workers, and are doing well. I wish them all the success their industry and skill entitle them to.

John Bosche's Sons succeeded their father in business about two years ago. They are doing fairly well, turning out as good work as is made in Buffalo, and securing, I am sure, their full share of the business.

AT BLACK ROCK, N. Y., near Buffalo, we find A. A. Justin, who is engaged in fine heavy work, mostly delivery wagons. Mr. Justin has a large shop, and is doing all the business he desires. His work is of the best, and any one wanting a cheap job doesn't want to go to Mr. Justin to get it, as he does not do that kind of work.

There are of course in such a city as Buffalo many small shops, but the space allotted for one letter is insufficient for me to mention these.

Yours most truly,
E. D. MOORE,
Of the Royer Wheel Co,

TRADE REPORT FROM MICHIGAN.

JACKSON, MICH., April 22, 1884.

EDITOR OF THE HUB—DEAR SIR: Throughout the West, the spring is late, roads are bad, and sales of Buggies have been confined to the jobbers.

From the best estimate I can make, there are not one-third as many Buggies made at this time in the State of Michigan as were in market one year ago. Everybody has practiced great caution in buying materials, being fearful of a dull season on account of the excitement of a presidential election; and builders have made fewer jobs than I have ever seen on hand preparatory to commencing the summer sales.

Buggies are apt to run in ruts, and buggy-makers have got into the same habit. Nearly all large manufacturers seem determined to duplicate the work of their immediate competitors. Mr. A. builds a buggy to sell for a certain price, and Mr. B. must make the same buggy, and for the same price; while if A. trims with blue cloth of a certain grade, B. dare not risk the experiment of trimming with green of a less or higher grade. This same effort at duplicating is one cause, and a prominent cause, of the extremely low prices that have prevailed throughout the West. Five cents extra on a set of axles, or two cents a yard on price of cloth, is sufficient nowadays to drive away a western carriage-maker as a customer. "Just as good as some other maker's," is all that any one dare claim in these times.

I cannot but think that a little more independence in style, and better quality, would have helped to sustain better prices and to secure better profits. There will come a time when prices of material will advance and, until then, I see no prospect of making any money in manufacturing Buggies.

The humbug talk in Congress about free trade has done much towards producing the present stagnation in trade, for there is no over-production at present. The wants of the western people are fully equivalent to the present supply, but low prices have frightened buyers, who are waiting for a still greater decline under free trade, until we are now nearly in a panic. The evident signs of improvement are beginning to show themselves and trade is improving, but very slowly.

Give us good crops for 1884, and we shall enter upon general prosperity after the excitement of a presidential election is over, provided only that—but never mind what! for you are not a political newspaper. F.



NEW-YORK CITY.

OBITUARY.—Died in this city, on April 21st, at 2 o'clock P. M., after a long and painful illness, Christianna Kehrl, aged 49 years, the highly esteemed wife of Mr. Albert Kehrl, draftsman and assistant editor of *The Hub*.

REMOVAL.—Mr. V. G. Hundley is about to remove from his present quarters to No. 122 Chambers-st., New-York City; and, in addition to a full line of spokes, will add largely to his specialties for the carriage trade.

J. BORRHO started in the carriage business last fall, at 249 and 251 W. 28th-street, near Eighth avenue, New-York. Trade has been quite brisk with him up to date, and he expects an increase this spring. Mr. Borrho is a body-maker by trade, and a good one. He has *The Hub's* best wishes for his success.

SERENE.—Mr. John H. Moore, of 57 Warren-st., New-York, is a dealer in an extensive way in about everything that buyers of carriages and harness require. He can supply everything, except the horse, out of his stock. In this line, he has one of the best established houses in New-York, and business is booming.

PERSONAL.—Mr. F. J. Schmid, of New-York, who is known to all carriage-builders as a maker of fine coach laces, will leave on May 7th on the *Elbe* for an extended European trip, including France, England and Germany. He will return with latest designs in coach laces. Mr. Schmid's brother and manager of the business, remains as usual, to welcome customers and friends.

TWO FACTS.—The Metal Stamping Company, of New-York, has recently introduced the air cushion rubber top-prop block. A large prop block which will always retain its elasticity has long been a desideratum to carriage-builders. This article has found immediate favor, and proved a success from its very first introduction. This company will, on account of the growing demands of its business, remove about May 1st to enlarged premises at Nos. 134 and 136 Chambers-st.

THE NEW-YORK CITY CARRIAGE TRADE during the past month, has been dull and unpromising, and many complaints have been expressed. The depressed condition of Wall-st., and a general feeling of uncertainty now prevailing among the "coupon cutters," who constitute the bulk of the best city trade, are probably the leading causes of this dullness. Reports from out-of-town are, as a rule, of a more cheerful character, and lead us to consider the general condition of business throughout the country as healthy and active.

AN ANNIVERSARY ENTERTAINMENT was held by the Mutual Aid Association of the John Stephenson Company, (Limited), in their rooms, No. 537 Third Avenue, on Saturday evening, March 29, 1884, and proved a very enjoyable occasion. The programme included addresses, recitations, songs, violin and cornet solos, whistling, Indian club exercises, and music by Prof. Williams's orchestra, followed by refreshments. President J. M. Wade is to be congratulated on the variety and high order of talent which was called out. We hope the Association may give many more such entertainments, and that we may again have the pleasure of being present.

THE CRIME OF RUNNING INTO A WAGON.—John McCarthy, tried Feb. 27th, 1884, before Recorder Smith, New-York, is the first person convicted of committing a crime in running into a wagon. The Penal Code provides for the punishment of persons guilty of a willful injury to property. Valentine Reuthlin was driving a three-horse team on the down track of the Belt Railway in First-ave. on January 18th, when he was met by McCarthy, who was driving a four-horse truck up the avenue, but who refused to leave the down track. The wagons came into collision and Reuthlin's truck was injured. McCarthy was convicted of a violation of section 654 of the Penal Code, the first conviction under the section, and the Recorder sentenced him to 30 days in the Penitentiary.

WORTH HUNTING FOR.—The Executive Committee of the Carriage Builders' National Association are very anxious to secure a dozen or more copies of the official reports of the first, second and third annual conventions of the Association, in order to prepare bound copies of the first ten years in book form. Secretary Hooker writes from New-Haven, under date of April 4th: "The Association will feel under great obligations to you if you will mention this fact in *The Hub*, and state that the Secretary will give \$1.00 a copy for a limited number."

ANOTHER FIFTH-AVENUE REPOSITORY.—R. M. Stivers, of Thirty-first street, New-York, has leased the spacious warerooms corner of Twenty-seventh street and Fifth avenue, under Hotel Victoria, and directly opposite the Hotel Brunswick, and will open on May 1 with a full line of fine carriages. Mr. Wilder H. Pray will have charge of the new repository. The manufacturing will continue, as heretofore, at No. 150 E. 31st-st., the product including all classes of light, medium and heavy carriages, and also trotting work and sleighs. We congratulate Mr. Stivers upon having secured, in his new repository, what has long been considered one of the most favorable stands in this city for the exhibition of vehicles to the carriage-buying public, and we trust that the venture will prove profitable and in every way satisfactory.

NEW-YORK STATE.

TRADE GOOD.—Mr. E. V. Knipe, Nattituck, L. I., reports trade as good. His specialty is business wagons, but he includes light work, repairing, etc.

THAT IRON WHEEL.—The Smith Suspension Wheel Co., Lockport, N. Y., are making improvements in the model of their wheels, and will soon have something new to offer to the trade.

THE CHAMPION GEAR.—The Champion Gear Co., Lockport, N. Y., in its reorganized condition is making an active canvass for trade, and is meeting with results that justify all reasonable expectations.

FIRE.—D. W. Shuler, of Amsterdam, N. Y., whose large spring factory is so well-known throughout the trade, was destroyed by fire on April 3d. The loss was a very serious one, but we have no doubt that arrangements are now completed to take care of orders, and to rapidly rebuild the structure.

NEW CONCERN.—J. H. Williams & Co., Brooklyn, N. Y., with whom are associated Messrs. Dimond and Pratt, late with H. M. Strieby & Co., have everything perfected for doing perfect forgings of any pattern, to order, in iron or steel.

"ASSURANCE DOUBLY SURE."—Mr. Davis W. Shuler, Amsterdam, N. Y., notifies us that Mr. Henry Timken has authorized him to use his cross-spring in connection with the Shuler Combination Spring, so that there can be no question about conflict of patents. The Shuler spring is selling splendidly.

THE C. B. HITCHCOCK MFG. CO., Cortland, N. Y., is the title of the new company into which the business of the C. B. Hitchcock Buggy and Cutter Works merged in February last. This house manufactured and sold over 8,000 cutters alone during 1883. They are now working 12½ hours a day on their wagons. Mr. Hitchcock is an energetic business man, and well deserves the success he has attained.

NEW-ENGLAND.

ENGLISH & MERSICK, New-Haven, Conn., make a specialty of importing canopy tops, and fringe for the same.

REMOVAL.—Geo. H. Ferguson, whose carriage shop in Lawrence, Mass., was burned on Sept. 2d last, has removed his business to Woburn, in the same State.

WASHED OUT.—The village of Ansonia, Ct., is a river town that has suffered from too much water by the breaking of the neighboring dam. The Sperry Mfg. Co. stood in the way of the waters, and its works now have a somewhat faded look. The fifth-wheels made by this concern are not proof against such bad fortune. The works will be rebuilt.

NEAT AND SERVICEABLE.—Porter & Wooster, Boston, Mass., have issued a new catalogue, now before us, which is in every respect a credit to the house. Between its neat cloth covers will be found an extended illustrated list of their goods, with clear, concise descriptions. The goods made by this firm are just as nice as the illustrations, and fully maintain the reputation of the makers.

LIKES OUR COLORED PLATES.—Mr. Herbert E. Wilford, carriage body-maker and draftsman, writes as follows from Amesbury, Mass., under date of April 3d.: "The Colored Plates are certainly a great addition to *The Hub*, as they are gotten up in such good style, and so clearly show the different departments of workmanship. I have framed several, and they make handsome pictures for the wall."

HINCKS & JOHNSON.—During a recent Eastern trip, we visited the works of Messrs. Hincks & Johnson in Bridgeport, Conn., where we had the pleasure of renewing our acquaintance with Mr. G. B. Lee, their draftsman and constructor, who is already well known to our subscribers through many valuable contributions to our columns. A new concealed hinge particularly attracted our attention. It is the invention of Mr. Lee, very simple in construction, and has been thoroughly tested. He has kindly promised us a sketch of it, to be used for the benefit of the trade. The depression of the times has seemingly had no effect on this establishment. All hands were as busy as they could be.

HE LIKED OUR MARCH HUB.—In a letter from Mr. H. G. Shepard, of New-Haven, dated March 11th, he expresses in his usual vigorous manner, as follows, the feeling with which he arose from reading our last number. He says: "Allow me to congratulate you on the excellent appearance of the last *Hub*,—and not upon its appearance only, but upon its solid worth. I have been very much pleased to see it improve month after month, until it has reached its present high standard of excellence, and is now the peer, at least, of any publication of the kind I ever saw. Mr. Editor, allow me to shake hands with you. I don't often lose my balance this way, but the last *Hub* impressed me greatly."

LARGER TRADE THAN EVER BEFORE.—The White Mfg. Co., of Bridgeport, Conn., take a cheerful view of the present and future prospects of an increased demand for all classes of carriage goods, based upon orders now in hand, and the general outlook as viewed from their standpoint. Mr. Boudren has recently returned from a six-weeks' Western trip, and reports that customers never before ordered so freely as this spring. Cincinnati and Louisville were the only cities he visited which seemed to have any reason to complain of dullness of trade, although he found a general disposition to buy cheap. Mr. Boudren suggests that one cause of "dull trade" is the fact that many well-established houses have not increased their output; but, at the same time, numerous smaller houses have been growing into prominence, and have built up a healthy trade, so that the present demand for carriage goods exceeds that of former and more famed seasons.

PERSONAL.—Mr. Chauncey Thomas, the well-known carriage-builder of Boston, Mass., and an active member of the Committee of the Carriage Builders' National Association on Technical Education, sailed for Europe on April 26th, by the Cunard steamer *Catalonia*, from Boston, and proposes to be absent about two months. He calls it a trip for rest and recreation; but, with characteristic American enterprise, he has laid out a line of march including Liverpool, London, Paris, Marseilles, Genoa, Rome, Naples, Florence, Venice, Geneva, and again to Paris and London. Mr. Thomas may be addressed, while thus absent, in care of Mr. Hadwin Houghton, 91 Champs Elysées, Paris, France; and we hope that *The Hub's* friends, both in England and France, will offer him every opportunity to study the methods of instruction practiced abroad, which is one of the objects of his present trip.

MIDDLE STATES.

OBITUARY: PHINEAS JONES, OF NEWARK, N. J.—Hon. Phineas Jones, senior member of the firm of Phineas Jones & Co., the well-known wheel manufacturers, who has been ill at his home in Newark, N. J., for several weeks, died on Saturday evening, April 19th. During all last summer Mr. Jones was in impaired health, and he sought relief by a visit to New-England and Richfield Springs, but was not much improved. Some weeks ago an abscess formed in his side, and recently an operation was performed, but he gradually sank until death came. Mr. Jones was a native of Worcester Co., Mass., and was in his sixty-sixth year. In 1855 he went to Elizabethport, N. J., and established a wheel factory there, and in 1860 he removed to his late home in Newark, on the site of the present Newark and New-York Railroad depot, and subsequently to the present location, near the Market-st. depot, and added to his business the sale of carriages and sleighs. While a resident of Elizabeth he was a member of the Common Council, and after his removal to Newark was elected to the Legislature. In 1880 he was chosen a member of Congress, but declined a renomination in 1882 owing to his ill-health. He was a Director of the People's Insurance Company, a Trustee of the Evergreen Cemetery Association, a prominent member of the New-Jersey Agricultural Society, one of the original members of the Board of Trade, an Honorary Member of the Carriage Builders' National Association, and one of the founders and the President of the Gentlemen's Driving Club. Mr. Jones was a man of genial manners, and won the respect and confidence of a large circle of friends. In business his integrity was above reproach, and in private and social circles he was characterized by qualities which always command esteem. The business of Phineas Jones & Co. will be continued, unchanged, by the other partners of the house, which include his eldest son, Mr. Henry P. Jones, and Mr. W. H. Baldwin.

WESTERN STATES.

SPLendid.—E. M. Miller & Co., Quincy, Ill., are running 22 fires and are still behind orders.



COL. H. S. BENJAMIN, whose portrait we herewith introduce, is the manager of the mammoth repository of the H. S. Benjamin Wagon and Carriage Co., in Milwaukee, Wis., first opened by him in September, 1879, since which time it has continued to expand with surprising speed, until it now occupies a place in the front rank, as one of the largest and most successful repositories in this country. Mr. Benjamin was born in Irving, Franklin Co., Mass., in 1843, and his career has been that of a self-made man of the typical Yankee stamp. His early years were marked by privation, and misfortune has frequently befallen him, but apparently only to develop and increase his energy and pluck. His title of Colonel is an honorable recognition of his services to the nation and to the State of his adoption. At the close of the war he remained in the South, and for a year ran a cotton plantation with marked success, but his crop being ravaged by the cotton-worm, he abandoned the life of a planter, and returning North in 1866, engaged in the meat and grocery business at Springfield, Mass. About a year later he sold out his interest in the business to his partner and moved to Wisconsin where he carried on a mill and lumber trade, which continued to prosper until his ample buildings were swept away by fire, leaving him almost penniless. Through the influence of friends he received a State appointment which he maintained until 1871, when he removed to Milwaukee to accept the agency of Wisconsin for the Davis Sewing Machine Company of New-York. In this agency he was successful from the outset, and in 1879 removed into handsome and commodious quarters and established the wagon and carriage-building branch of his business. This feature became so successful that, three years later, he abandoned all others and devoted himself to this specialty. On Jan. 9th, 1884, owing to complications arising from California consignments, Milwaukee assignments and Racine indorsements, the business was merged into the present incorporated company, with a capital of \$60,000, and Mr. Benjamin acts as the general manager. Their present buildings cover an area of 50 x 150 feet, exclusive of storage and shipping warehouses, and the trade embraces a varied and extensive line of carriages, wagons, sleighs, trucks, omnibuses and road-carts. In addition they deal extensively in harness and stable goods of every description, and large repair shops are connected with the establishment. The business in 1882 aggregated one quarter of a million dollars, about \$150,000 of which was for the wagons of Fish Bros. & Co., of Racine, Wis.

A SIMPLE RAIL.—Shreidt & Miller Co., Mansfield, Ohio, have a very simple shifting-rail, that is sold at an attractive figure.

A. H. DAILEY, of Omaha, Neb., employs 20 men, runs 3 fires and builds both heavy and light work. He reports trade fair at present, with a good outlook.

THE SELLE GEAR, made by the Cleveland Carriage Bow Co., is meeting with a very favorable reception, which is no more than it deserves, as it is strong, simple and cheap.

A. J. SIMPSON, of Omaha, Neb., employs 37 men and runs 5 fires. He is crowded with orders, including a landau and hotel 'bus of noteworthy novelty and attractiveness.

YOKED TO SUCCESS.—Haight & Sovereign, Rockford, Ill., now have the largest neck-yoke factory in the West, with a capacity of five hundred finished neck-yokes per month.

THE HAYES CARRIAGE CO., Columbus, O., report that their spring trade is opening nicely, and that they have a full force of hands. The wood department is particularly rushed.

MORE ROOM.—T. D. Olin & Co., late of Terre Haute, Ind., have removed to Cincinnati, O., where they have offices at 181 West Fourth-st. This move is made in the interests of their rapidly growing business.

E. D. MEADEINBER, of Omaha, Neb., contemplates building an addition to his factory, 40 x 100 feet, two stories. He employs 16 men, and runs 2 fires, building both heavy and light work and also doing a large repair business.

S. B. MCCORD, of Baker City, Oregon, established in 1865, has just issued an illustrated "Calendar Price-list of Carriages, Wagons, etc.," adapted for preservation in the pocket, which ought to prove attractive to prospective buyers.

PLYMOUTH, O.—The shops in Plymouth, O., were very quiet during March, but feeling confident about prospects for a fairly good spring trade. Parker & Deveney have invented a shifting-rail that has many good points, and they propose to offer it to the trade at a fair price.

NOW.—We learn that Mr. Geo. W. Heartley, Toledo, Ohio, has recently secured the exclusive right to sell in the United States the Little Giant axle-box press, formerly made and sold by Hout & Dawson. This is an excellent tool, and many will be glad to know where it may be again procured.

DAVID MORGAN & SONS opened a small carriage shop in Shelby, Mo., in 1857, but have continued to show healthful growth; and they report as follows under date of March 14th: "We are now doing a driving business, employing 12 men, and building farm wagons, platform-spring wagons and buggies."

THE MASON CARRIAGE WORKS, Davenport, Ia., John L. Mason, proprietor (formerly Mason & Evans), report that they have been working a full force of hands all winter, and are now prepared for spring trade with the best assortment of work they have ever had. They consider the outlook favorable for a good season's business.

ALLEGAN DESTROYED.—The fire at Allegan, Mich., March 19, was painfully destructive. The village is practically demolished, and the losses large. Our old friend, Mr. E. B. Born, was burned out along with the others, but with true Western pluck he is nothing daunted, and will be in good shape as soon as anyone. He has our sympathy.

A COLOR FACTORY.—Every one in the East knows Capt. Walker, late of Amesbury. He is now superintendent of the color department of Cary, Ogden & Parker, in Chicago, Ill. This firm has the most ample and complete facilities for producing the finest coach and car colors; and, with Capt. Walker's long experience in this trade, they can honestly assure their customers of a high-class product.

"**AS PRETTY AS A JACKSON WAGON**," is the title of an illuminated card which the agents of the Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich., are now engaged in distributing. It bears the portrait of a pretty girl, whose fan is decorated with a picture of the wagon in question; while beside her sits a parrot, whose plumage evidently suggested the palette from which the wagon was painted.

A WORD OF ENCOURAGEMENT.—Mr. C. A. Bedell, writing to our Editor from Dayton, O., under date of March 14th, says: "I think the Committee of the Carriage Builders' National Association on Technical Education, of which you are the Secretary, would be greatly encouraged if they could only know how the heaven of technical education is now working in the minds of teachers, school-boards, mechanics and all thinking people. I see many evidences of the movement here."

HATMAN & NORMANDIN, proprietors of the Pacific Carriage Works, San Jose, Cal., could not have found last year's trade so very dull, for they are now engaged in enlarging their facilities. For some time past they have occupied a two-story building, 30 x 90 ft., on Santa Clara-st., and a one-story paint-shop in the rear, 35 x 60 ft. They have just added a new two-story building, 35 x 60 ft., which gives increased elbow-room to their trimmers and painters. All classes of light and medium carriages are built.

IT SHINES FOR ALL.—When Mr. O'Brien started his varnish works in South Bend, Ind., that pent-up Utica very easily contained him and his works. But the world has grown, and so has the varnish business in question, until now we have the pleasure of calling the attention of our readers to the cut in our business pages of the new, enlarged and handsome factory, that is found none too large to meet the demands of the growing trade of the O'Brien Varnish Works, which are now turning out goods for the whole country; and it is not too much to say that this varnish, well applied, "shines for all!"

N. G. OLDS & SONS, Fort Wayne, Ind., in a communication to us dated April 21, give a more cheering view of their present trade and future prospects than was intimated in an item which appeared in our last number. They call attention to the incorrectness of the information as given by our correspondent, and add: "The quality of our goods is too well known throughout the country for any one to believe for a moment that, when any wheel concerns are busy, we have no work. Our trade this year, up to date, is more than for the corresponding period last year, and the largest in the United States excepting one."

ANOTHER FIRM HEARD FROM.—A few months ago, DeGolyer & Bro., published a *fac simile* letter from Bruce Carriage Co. of Cincinnati, O., which has a strong testimonial to the worth of the DeGolyer Varnishes, and now we have before us a letter from Geo. C. Miller's Sons' Carriage Co., of Cincinnati, written by the president, Mr. Jno. M. Miller. We give a copy of it. "Messrs. DeGolyer & Bro., Chicago, Ill. Gentlemen: You have our permission to publish the fact that we have used your Elastic Gearing and rubbing varnishes constantly for many years with the most satisfactory results." This house makes fine work, and their approval of a varnish is high praise.

FALL OF A CARRIAGE FACTORY.—The carriage factory of J. Kemple, St. Louis, Mo., a three-story brick building, caved in early on the morn-

ing of April 6th, and was nearly destroyed. About a dozen employes, with their families, occupied the upper story, several of whom went down with the debris, but none was seriously injured, except Mrs. Cacer, whose hip was dislocated, and a child whose eyes were blinded with lime dust. Several remarkable escapes were made. The fire alarm was sounded, and those of the inmates who had not already escaped were taken out of the ruins by the firemen. The damage is about \$5,000.

TRANSFORMATION CUTTER.—"That looks like a pretty one-seated cutter, doesn't it?" The reporter admitted it did. "Well, now just keep your eyes upon it while I go through a transformation scene." Moving the first seat back disclosed another seat neatly doubled up beneath the first, which, being turned up and unfolded, completed the change of the cutter from a neat one-seated rig to a graceful double-seated one. The patentee, is William H. Steinbrecher, of Steinbrecher Bros., carriage-builders, of Detroit, Mich. The patent was only obtained January 8th, but since then the boys have sold all they could make. With such a cutter as this, even a sober man might be forgiven for not knowing his own rig sometimes.

THE CHICAGO MANUAL TRAINING SCHOOL opened to pupils on Feb. 4th. This school differs from the high school in omitting from its required studies foreign and ancient languages, in giving prominence to mechanical drawing, and particularly in affording scientific instruction and actual practice in the care and use of tools. Throughout the course, one hour per day, or more, will be given to drawing, and not less than two hours per day to shop-work. The remainder of the school day will be devoted to study and recitation. Before graduating, each pupil will be required to construct a machine from drawings and patterns made by himself. A diploma will be given on graduation. Candidates for admission to the first year must be at least fourteen years of age, and must present sufficient evidence of good moral character. They must pass a satisfactory examination in reading, spelling, writing, geography, English composition, and the fundamental operations of arithmetic as applied to integers, common and decimal fractions, and denominate numbers. Ability to use the English language correctly is especially desired. Pupils furnish their own books, drawing instruments and material, aprons, overalls and pocket tools. Shop tools are provided by the School. The School will not teach trades. Its aim is more comprehensive—it lays the foundation for many trades, and at the same time recognizes the value of intellectual discipline.

THE NORTHWESTERN SLEIGH CO., Milwaukee, Wis., has in a phenomenally short time, built up a large and thriving business, and ranks now among the leaders in this specialty. Their office and salesroom are located at No. 134 Second-st., and occupy a building 30 x 75 ft., and two stories high. The factory is on Canal-st., the buildings being arranged in E-shape, two and three stories high, and embracing 35,000 square feet of floor space. From fifty to eighty hands are employed in the factory, according to the season, besides a great variety of machinery, including in the wood-shop, two cut-off saws, two rip saws, one band saw, one mortiser, one planer, one shaper, one tenoner, one hub borer, one dowel machine, and one of Bailey's rounders and shapers; in the smith-shop, one punch and shears, one drill, one drop hammer, one tire-bender, and three forges; in the paint-shop, one Chapman & Goss rubber, and in the trimming-shop, one large Singer sewing-machine. The hands employed are divided as follows: In the machine-room, 6 hands; wood-shop, 16; blacksmith-shop, 6; paint-shop, from 10 to 25; trimming-room, from 4 to 12; and packing room, from 3 to 15. They are also building a new shop on Hill-st., 40 x 200 ft., and 4 stories, and as soon as they sell the Canal-st. shop they propose to build still larger quarters on Hill-st. They will build between 5,000 and 6,000 jobs during the year 1884.

THE COLUMBUS BUGGY CO. DRAWING CLASS.—The enterprise of the Columbus Buggy Co., Columbus, O., is constantly exhibited, and latest in the organization of a drawing class of thirty pupils connected by correspondence with the Technical School for Carriage Draftsmen and Mechanics in this city. The following extracts from a letter recently received from Mr. C. D. Firestone, of the company named, give ample evidence that this Chautauqua Class is certain to succeed in the work of education thus undertaken. Mr. Firestone says: "Our school here is progressing very nicely. Our boys seem to take quite an interest in it; and we find, by looking around our city, that we have a number of persons outside who are very much interested in knowing that the carriage-makers of the United States are so wide awake and determined to keep abreast of the times, and we are having offers of considerable outside aid. We will do all we can to make carriage drafting under the Chautauqua System a success. Our boys have become so much interested in this plan of working that, after meeting together once or twice, the boys in our machinery department have inaugurated a class in Mechanical Drawing, and quite a number of our boys have joined both classes. Our draftsman in the machinery department is the instructor, and, by calling in outside aid, the boys are making very fine progress. We do not know what the results will be, but we are satisfied by the attention and energy our boys are giving to this subject, that they are sure be very much benefited by it."

SOUTHERN STATES.

FIRE.—Pearce & Bros.' hub and spoke factory at Chattanooga, Tenn., was destroyed by fire on March 29th. Loss, \$22,000; insurance, \$12,000.

AN OPENING.—Mr. J. K. Goodwin, Selma, Ala., writes us that there is a very promising opening for a carriage woodwork factory in that city.

FIRE.—The carriage factory of W. W. Bowen, and the carriage warehouse of E. S. Valliant, at Church Hill, Kent Co., Md., were destroyed by fire on Sunday night, April 6th. The fire started in Mr. Bowen's shop, cause unknown; and his loss was \$15,000. Mr. Valliant's loss was \$1,200.

GEO. A. AINSIE & SONS, of Richmond, Va., report as follows: "We have been having awfully rainy weather here, which almost stopped sales in the season; but have had a very good run on repairing, considering how early in the new work it still is. With better working facilities, we are preparing for a better trade this year, and expect to have it."

WILLIAMSON BROS., Carriage-builders, of Belair, Md., report as follows under date of April 14: "Business is very good with us. We have a few orders at good prices, but we make it a rule not to build new work without we get good prices, as we make a specialty of good light work, and believe that one bad job would do us more harm than ten good ones will do us good."

TRADE REPORT FROM TEXAS.—Mr. M. G. Barrow, carriage-painter, with Jones & Stelfox, of Austin, Texas, reports as follows, under date of April 9th: "Business is now looking up, in the line of carriage-making, in this part of the country. Austin is a very healthy city, with 25,000 inhabitants, and business generally is booming. We are in need of a good carriage trimmer, and there is a lucrative opening here for a good one." Some of our trimmer friends may like to utilize this hint.

ENLARGED FACILITIES.—Mr. Fred. N. Thayer, of New-Orleans, La., has associated with him Mr. A. H. Walton, who is to be the buyer for the house with headquarters at Cincinnati, O., and the business will hereafter be conducted under the name of Fred. N. Thayer & Co. By this association Mr. Thayer obtains increased facilities for the new firm, and the powerful backing

of the Crane and Breed Manufacturing Co., of Cincinnati, for whom he has been sole agent for the past eighteen years.

THE HAGERSTOWN (MD.) SPOKE WORKS, among the oldest of the kind in that part of the South, was established in 1870 by Sebold & Case, at Wadesville, Va. The trade so increased that in 1879 it was found necessary to seek a more favorable location, and the works were purchased by Mr. Sebold and moved to Hagerstown. In 1880 a joint stock company was formed as above; and, with increased capital, additions were made in buildings and new and improved machinery. In 1882 over one million five hundred thousand spokes were turned out. The company enjoys a reputation for good work, and promptness in supplying all demands, and the foreign trade has become quite a feature. It is proposed, during this year, to make further addition to buildings and machinery.

IMPROVED COAL WAGONS.—Wm. & J. H. Leonhardt, 25 Saratoga-st., Baltimore, Md., builders of all varieties of wagons, have found it necessary to enlarge their factory, owing to the rapidly increasing demand for their patented dumping wagons and carts, used in delivering coal and wood. The object of their invention is to enable the driver, by suitable mechanism, to elevate the loaded cart or wagon body to any desired height, and turn the body to the side over the wheels; and then, by chutes, slide or dump the coal from the rear end of the body across the pavement, into cellars or other suitable receptacles, thus avoiding the filth and coal-dust heretofore common to the delivery of coal. For use in cities, and especially on narrow streets, these carts are of great value, particularly as they do not delay passing vehicles, street-cars or pedestrians, while unloading. The horse and wagon stand in a position parallel with the sidewalk, and when the body is elevated, a street-car can safely pass under the front end; while persons walking on the sidewalk are not obliged to pass around the team, but can walk under the chute. The makers have sold a number of these wagons in their own city, and lately shipped one to a prominent coal-dealer of Brooklyn, N. Y. They have on file in their office many strong testimonials from parties who are using the invention.

CANADA.

STILL ICE AND SNOW.—A letter from Mr. G. W. Robinson, carriage-builder, of Kingston, Ontario, says: "Although it is now April 9th, the ice in our harbor is still quite solid, and snow-banks to the height of 4 or 5 feet still decorate the sides of our roads."

TOO MUCH.—G. W. Robinson, writing from Belleville, Ont., on Feb. 1st, says: "It has been a very quiet winter with us in the sleigh line. What with dull times, and our roads blocked up with snow nearly all winter, there has been very little demand for cutters or sleighs in this vicinity."

CHARLES BROWN & CO., proprietors of the American Carriage Repository, Toronto, Canada, make the following trade report under date of March 3d: "Regarding trade in one particular line we sold a great many sleighs this last winter. Sleighting was extremely good, and we think the carriage emporiums here were all pretty well sold out. We consider the prospects for spring and summer trade in carriages fair."

FROM CANADA.—Mr. R. J. Kendall writes us from Montreal, Canada: We are very much pleased with the improvements in *The Hub*, especially the Colored Plates, which we consider very fine; also the increased attention given to working wagons, which form the principal part of our trade. Smith & Jones's experience is very interesting to us, as it is very near our own course. Trade in Montreal last season, especially with us, was very brisk, but we must add that we are not of the large dimensions of some of the firms we read of in *The Hub*. People say we are doing well, and very likely to grow large, but in this country, with moderate prices and a cut-throat trade to contend with, we deem it best to follow a conservative policy. Pardon the suggestion, but we think that a little more of your advice on the running of small concerns would be very acceptable, and studied with interest by a large number of *The Hub's* readers. Now one for the furnishing trade; it will speak for itself. We had occasion to use six sets of heavy bob runners, the strips on which were nailed with cut nails, and being rusted could not be drawn, but broke off just where twenty-four mortises came. As the scriptures say, "Swear not at all," who will have to answer? Gentlemen, please give us better nails! We have two complaints to make against our Canadian supply trade: The first is the roughness of all oak spokes. They are little better than not turned at all, having all to be worked over again.

FOREIGN.

DISSOLUTION.—Bush & Hinson, coach-builders, of Mansfield and Nottingham, Eng., have dissolved partnership, W. Hinson continuing.

THE REPORT of the Industrial Association of Canterbury, New-Zealand, has been received by us through the kindness of its President, Mr. A. G. Howland, carriage-builder, of Christchurch; and we have read it with interest.

THE TAX ON CARRIAGES IN ENGLAND, which has been long and energetically opposed by the coach builders of that country, is about to be removed by the Chancellor of the Exchequer. A brief cablegram announcement of the fact reached *The Hub* office on April 26, and we hope to give full particulars in our next number.

JAMES ALEXANDER, Glasgow, Scotland, having retired from the firm of James Henderson & Co., where he was managing partner, has purchased the works of J. Buchanan & Co., North-st., and will there continue business under that name. The works are perfectly adapted to their purpose, and we predict for Mr. Alexander continued prosperity.

FROM OVER THE SEA.—New-Zealand papers of Dec. 16, recently to hand, give detailed accounts of the opening ceremonies of the Industrial Exhibition recently in progress at Christchurch, in that Colony. The show was confined to the products of local manufacturers, and gave evidences of a flattering advance in the material interests of the Colony.

TRADE REPORT FROM VIENNA, AUSTRIA.—Messrs. Jacob Lohner & Co., the well-known carriage-builders of Vienna, report as follows under a recent date. They say: "The carriage trade with us was very dull during December and January, and no sleighs were sold, in consequence of the total absence of snow. Since the beginning of the present month business has been reviving, and we hope now for a good spring season."

W. H. MATHIESON, proprietor of the American Carriage Factory, at Invercargill, N. Z., writes as follows under date of Jan. 1st: "Business was very dull during the last year all over New-Zealand, the spring and summer were very backward and stormy; and, by reason of over importing, all industries have been nearly at a stand-still. With the advent of the new year, however, we in the carriage trade look forward hopefully to better times. Two of our industries, viz.: wool and mutton, continue to bring fair returns to the producers."

TRADE **VALENTINE'S** MARK.
"THE STANDARD FOR QUALITY."

THE GOLD MEDAL



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TO



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BY THE

Amsterdam International Exhibition,
SEPTEMBER, 1883.

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International Exhibition, Philadelphia, - - - - 1876 BRONZE MEDAL AND DIPLOMA.	Maryland Institute for the Protection of Mechanic Arts, - 1873 SILVER MEDAL.
Exposition Universelle, Paris, France, - - - - 1878 SILVER MEDAL.	Massachusetts Charitable Mechanics Association, Boston, - 1860 SILVER MEDAL AND DIPLOMA.
Melbourne International Exposition, Melbourne, Aus., - 1880 SILVER MEDAL AND FIRST ORDER OF MERIT.	Mechanics' and Agricultural Fair Ass'n of the State of La. 1873 DIPLOMA.
Adelaide Exposition, Adelaide, So. Aus., - - - - 1881 SILVER MEDAL AND FIRST DEGREE OF MERIT.	Agricultural Society of New So. Wales, - - - - 1877 BRONZE MEDAL.
American Institute, of the City of New-York, - - 1859-1870 SILVER MEDAL AND DIPLOMA.	Mechanics' Institute, San Francisco, California, - - 1877 SILVER MEDAL.

Valentine & Company,

NEW-YORK,

245 Broadway.

CHICAGO BRANCH,
 68 Lake-street,
 CHARLES E. MORRILL, Manager.

BOSTON BRANCH,
 153 Milk-street,
 D. GARDNER MANSFIELD, Manager.

PARIS BRANCH,
 91 Champs Elysées,
 HADWIN HOUGHTON, Manager.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Chas. H. Albrecht & Co., Cincinnati, O. . . . 146
 Conrad B. Day & Co., Philadelphia, Pa. . . 131
 Dealers in Coach-makers' Materials.
 English & Mersick, New-Haven, Ct. 164
 Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
 Jno. A. Gifford, 17 Park Place, New-York. 131
 Kemper Bros., Cincinnati, O. 136
 Ten Eick & Kent, 1553 Broadway, New-York 136
 S. D. Kimbark, Chicago. 134

AXLES.

- R. Cook & Sons, Winsted, Ct. 125
 Carriage and Wagon Axles.
 Dalzell & Co. 155
 Improved Collinga Axle.
 Goodyear & Ives, New-Haven, Ct. 136
 Carriage Axles. Specialty: Steel's patent Sand-box Axle.
 A. D. Howe & Co., Coshocton, O.
 Self Lubricating Axle.
 Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa. 139
 Fine and Medium Axles. (See Also Springs.)
 A. E. Smith & Warner Axle Co., Wilmington, Del. 132
 The Quaker Axle.
 Wood, Smith & Co., Fort Plain, N. Y. . . . 128
 Fort Plain Spring and Axle Works.
 F. W. Wurster, Brooklyn, N. Y. 140
 Axles of all kinds.

BODIES.

- F. T. Clymer, Wilmington, Del. 156
 Carriage Bodies and Carriage Parts.
 Jas. Driscoll & Sons Co., Springfield, O. . . 147
 Carriage Bodies for the Trade.
 Jackson Phaeton Body and Carriage Co., Jackson, Mich. 124
 Pat. Bent Sill Phaeton and Carriage Bodies.
 S. D. Kimbark, Chicago. 134
 Burr Patent Wagon Bodies.
 Miller Carriage Co., Bellefontaine, O. . . . 147
 Bodies.

BOLTS.

- Columbus Bolt Works, Columbus, O. 162
 Carriage Bolts, Forgings, Clips, etc.

CARRIAGES FOR THE TRADE.

- Abbott Buggy Co., Chicago, Ill.
 Perry Cart.
 D. A. Altick & Sons, Lancaster, Pa. 128
 M. L. Albrecht, Fort Wayne, Ind. 130
 Heath Carts and Gears.
 Anderson, Harris & Co., Cincinnati, O. . . 134
 Carriages, Buggies and Phaetons.
 D. Argerbright, Troy, O. 149
 Road Cart.
 F. A. Babcock & Co., Amesbury, Mass. . . 133
 The Clarkson Road Cart.
 Forder & Co., Limited, London, Eng. . . . 162
 The Royal Hansom.
 T. T. Haydock, Cincinnati, O. 135
 Buggies for the Trade a Specialty.
 L. B. Johns, Fort Wayne, Ind.
 Road Carts.
 Northwestern Sleigh Co. 132
 Carts.
 Renick, Curtis & Co., Greencastle, Ind. . . 130
 The Renick & Curtis Patent Road Cart.
 L. & M. Woodhull, Dayton, O. 154
 Buggies, Phaetons and Carts.
 Youngstown Carriage and Wagon Co., Youngstown, O. 129
 Buckboards and Buggies.

CLASS.

- Vanhorne, Griffen & Co., 25 Park Pl., New-York 136
 Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa.
 (Branches: New-York, Boston and Chicago.)
 Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
 Japanese Hair Mfg. Co., Jersey City, N. J. 140
 Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O. 152
 W. I. Atwood & Co., Amesbury, Mass. . . 129
 Fine Carriage Mountings.
 The E. D. Clapp Mfg. Co., Auburn, N. Y. . 158
 Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
 C. B. Clarke, St. Louis, Mo. 144
 Silvester Patent Tire.
 C. Cowles & Co., New-Haven, Ct. 163
 Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
 Cortland Box Loop Co., Cortland, N. Y. . 125
 Cortland Buckle Loop.
 Dayton Malleable Iron Co., Dayton, O. . . 148
 Carriage Hardware.
 W. M. Farr, Dowagiac, Mich. 162
 Common Sense Sand and Mud Band.
 M. T. Gleeson, Columbus, O. 150
 Fine Carriage Mountings.
 Herbrand Co., Fremont, O. 150
 Herbrand Gear Irons.
 Geo. W. Kerr, Bridgeport, Ct. 150
 Cart Irons.
 S. D. Kimbark, Chicago. 134
 Carriage and Wagon Hardware.
 Kopcsay & Polya, New-York City. 163
 Carriage Door Lock.
 R. H. Lassig, New-York City.
 Coach Locks and Hinges.
 Metal Stamping Co., New-York. 134
 Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)
 Queen City Forging Co., Cincinnati, O. . . 162
 Carriage Hardware.
 Rubber Step Mfg. Co., Boston, Mass. . . . 147
 The Rubber Covered Carriage Step.
 Schollhorn & Tiesing Mfg. Co., New-Haven, Conn. 143
 Coach Hardware.
 H. D. Smith & Co., Plantsville, Ct.
 The "Encircled S" brand of Fine Carriage Forgings. 4th cover page
 H. M. Strieby & Co., Newark, N. J. . . . 128
 Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
 Toppliff & Ely, Elyria, Ohio. 133
 Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
 Trenton Iron Co. 154
 Wire for Ties and Can Opners.
 Vehicle Shaft Supporter Mfg. Co., Cincinnati, O. 131
 Iron Shifting Rails.
 Walter & Miller, Fremont, O. 155
 J. H. Williams & Co., Flushing, N. Y. . . 152
 Steel and Iron Drop Forgings.
 White Mfg. Co., New-Haven, Ct. 142
 Pole Crabs.
 Wolff & Co., Cincinnati, O. 141
 Carriage Hardware and Woodwork.

IRON AND STEEL.

- McClure & Field, Boston, Mass. 129
 Specialty: B. & M. Tire Steel.
 S. D. Kimbark, Chicago. 134
 American and Norway Iron, Steel Tire, etc.
 Wm. & Harvey Rowland, Frankford, Philadelphia 138
 Iron and Steel. (See also Springs.)

LAMPS.

- C. Cowles & Co., New-Haven, Ct. 163
 (See also Hardware and Mountings.)

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 146
 A Substitute for Leather.
 T. P. Howell & Co., Newark, N. J. 141
 "Lion" Brand, Patent and Enameled.
 New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich. 140
 Little Giant Hub-Borer.
 J. W. Barber, North Adams, Mass.
 Spoke Tenoner and Wheel Horse.
 W. F. & John Barnes, Rockford, Ill. . . . 137
 Foot and Steam Power Machinery.
 Bentel, Margedant & Co. 125
 Woodworking Machinery.
 Capital City Mach. Works, Columbus, O. . 129
 Standish Imp. Foot Power Hammer or Oliver.
 Chapman & Goss, Milwaukee, Wis. 131
 Universal Polishing Machine.
 Combs & Bawden, Freehold, N. J. 146
 Tire and Axle Upsetting Machine.
 Cordesman & Egan Co., Cincinnati, O. . . 148
 Carriage Wood-working Machinery.
 Cyclone Mfg. Co., DeWitt, Iowa. 146
 Iowa Cyclone Hub Borer.
 Defiance Machine Works, Defiance, O. . . 129
 Hub, Spoke, Wheel and Bending Machinery.
 J. A. Fay & Co., Cincinnati, O. 158
 Woodworking Machinery.
 George W. Heartley, Toledo, O. 162
 Little Giant Axle Box Press.
 Mason Wheel Co., Crown Point, N. Y. . . . 146
 Wheel Tenoning Machine.
 H. J. Miller & Co., Goshen, N. Y. 142
 Felloe-boring and Spoke-tenoning Machine.
 H. A. Moyer, Syracuse, N. Y. 156
 Hub Boring and Boxing Machine.
 C. F. Pettingell & Co., Amesbury, Mass. . 140
 Full line of Patented Carriage and Wheel Machinery.
 Uhler & Benton, New-York. 141
 The Lewis Axle Machine.
 Wiley & Russell Mfg. Co., Greenfield, Mass. 2d cover page
 Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 128

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O. . . . 129
 Coach and Car Colors and Varnishes.
 Carey, Ogden & Parker, Chicago, Ill. . . .
 Coach and Car Colors. 3d cover page
 F. W. Devoe & Co., New-York. 128
 Carriage, Coach and Car Colors.
 Felton, Rau & Sibley, Philadelphia, Pa. . . 141
 Ivory Drop Black.
 Miles Bros. & Co., New-York. 149
 Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.
 Chas. Moser & Co., Cincinnati, O. 125
 Palm Bros. & Co., Cincinnati, O. 124
 Transfer Ornaments.
 Palm & Fechteler, New-York. 138
 Transfer Ornaments.
 Reno Bros., Pulaski, Pa. 144
 French Umber Filler.
 A. Smith & Sons, New-York City 138
 Chas. D. Thum, Philadelphia, Pa. 162
 Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.
 Jno. L. Whiting & Son, Boston, Mass. . . . 142
 Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.

PUBLISHERS.

- "The Hub," New-York City.
 157, 158, 159, 161, 163
 E. Taylor & Co., London, Eng. 164
 "The Stable."

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind. 134
Gears.
- Bridgeport Spring Co., Bridgeport, Ct. 133
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.
- Canton Spring Co., Canton, O. 131
Carriage, Wagon and Seat Springs.
- Cleveland Carriage Bow Co. 158
Sell's Platform Gears.
- Dexter Spring Co., Hulton, Pa. 126
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.
- Gormley Spring and Gear Co., Fostoria, O. 155
The Gormley Patent Spring and Gear.
- Henry Spring Co., Winsted, Conn. 164
The Henry Single-leaf Rib Spring.
- Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa. 139
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)
- Longstreth & Ayer Mfg. Co., Columbus, O. 143
The L. & A. Adjustable Side-spring.
- Magner & Thomas Spring Co., Wellsville, N. Y. 150
Improved Thomas Spring.
- C. M. Murch, Cincinnati, O. 151
Spring and Gear.
- Mulholland Spring Co., Dunkirk, N. Y. 135
Mulholland Springs and Gears.
- T. D. Olin & Co., Cincinnati, O. 158
The Olin Springs.
- Penn & Lee, Syracuse, N. Y. 145
Springs of all kinds.
- Rice Spring & Carriage Co., Pittston, Pa. 130
Rice Carriage Springs.
- C. W. Saladee, Torrington, Conn. 163
"Duplex Springs."
- Wm. & Harvey Rowland, Frankford, Philadelphia, Pa. 138
Fine Springs from Swedish Stock. Also Iron and Steel.
The Shuler Springs and Gears.
- D. W. Shuler, Amsterdam, N. Y. 139
- Geo. F. Thompson, Oshkosh, Wis. 160
Thompson's Improved Climax Gear.
- Henry Timken, St. Louis, Mo. 127, 156
The Timken Cross-Spring.
- Tomlinson Spring Co., Newark, N. J. 136
Fine Springs and Axles.
- R. Tomlinson Spring and Axle Works, Bridgeport, Ct. 162
Springs: Specialty, The Hamlin.
- Tuthill Spring Co., Chicago, Ill. 142
Fine Springs, including Timken, Pennoyer, Stickle, Groot, Brewster, and other patent Springs.
- Whitney Spring Co., Poughkeepsie, N. Y. 139
The Whitney and Storm Side-bar Springs.
- United Rubber and Steel Spring Co., Plattsburgh, N. Y. 142
- C. R. & J. C. Wilson, Detroit, Mich. 126
The Wilson Side-bar Cross-spring.
- Wood, Smith & Co., Fort Plain, N. Y. 128
The American Standard Springs and Axles.

TOOLS.

- Jno. Bayliss, Stamford, Ct. 152
Forge and Tuyere.
- Chambers, Bros. & Co., Philadelphia, Pa. 162
Bolt and Rivet Clippers.
- S. D. Kimbark, Chicago. 134
All latest improvements in Tools and Machines.
- J. W. Manneer, Rochester, N. Y. 142
Manneer's Bench Drill.
- Porter & Wooster, Boston, Mass. 148
"Easy" Bolt Clipper.

TRIMMERS' MATERIALS.

- Active Manufacturing Co., Cincinnati, O. 152
Carriage Dashes. (See also Hardware.)
- American Tack Co., Fairhaven, Mass. 142
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)
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Leather Covered Bow.
- Bridgeport Coach-Lace Co., Bridgeport, Conn. 136
Coach Laces and Trimmings.
- Cleveland Dash Co., Cleveland, O. 160
Carriage Dashes and Fenders.
- Cleveland Carriage Bow Co., Cleveland, O. 158
Leather-covered Carriage Bows.
- Cortland Box Loop Co. 125
(See Hardware.)
- Crandal, Stone & Co., Binghamton, N. Y. 131
Carriage Trimmings.
- Dalton, Barton & Co., London, Eng. 147
Carriage Laces and Trimmings.
- Durham & Wooster, New-Haven, Conn. 144
English Canopies
- Excelsior Top Co., Cortland, N. Y. 154
Carriage Tops.
- Haight and Sovereign, Rockford, Ill. 155
Shuman's Swivel and Rockford Neck Yokes,

- Hardt, Von Bernuth & Co., New-York City, 131
Carriage Cloths, etc.
- Harris Button-Hole Co., Lim., New-York. 149
Pat. Crimped Leather Knob Eyelets.
- Japanese Hair Mfg. Co., Jersey City, N. J. 140
Japanese Hair and Japanese Moss.
- S. D. Kimbark, Chicago. 134
Cloths, Leather, etc., etc.
- Chas. P. Ketterer, New-York. 134
Wagon Curtain Fastener.
- C. Z. Kroh & Bro., Toledo, O. 137
Tops, Cushions, Backs, Falls, etc.
- Longstreth & Ayer Mfg. Co., Columbus, O. 143
Dashes, etc.
- Metal Stamping Co., 64 Reade-st., New-York, 134
- Parker Carriage Goods Co., Cincinnati, O. 125
Carriage Trimmings in great variety.
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Scott's Whip Sockets and Fasteners.
- Ten Eick & Kent, New-York City. 136
Carriage and Sleigh Materials of every description.
- Topliff & Ely. 133
See Hardware.

VARNISHES, JAPANS, ETC.

- Moses Bigelow & Co., Newark, N. J. 160
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- Berry Bros., Detroit, Mich. 124
Coach and Railroad Varnishes.
- John Babcock & Co., Boston, Mass.
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- Billings, Taylor & Co., Cleveland, O. 129
Coach and Car Colors and Varnishes.
- DeGolyer & Bro., Chicago, Ill. 153
Fine Coach Varnishes.
- F. W. Devoe & Co., New-York. 128
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- King Varnish Co., Akron, O. 123
Fine Coach Varnishes.
- Moller & Schumann, Brooklyn, N. Y.
.....2d cover page
- O'Brien Varnish Works, South Bend, Ind. 152
- Parrott Varnish Co., Bridgeport, Ct.
.....2d cover page
- C. C. Reed & Co., New-York City. 137
- A. Smith & Sons, New-York City. 138
- Stimson & Co., Boston, Mass. 163
Fine Coach and Car Varnishes.
- Valentine & Company, New-York. 121
- L. M. West, Rockford, Ill. 140
Carriage-top Dressing.

WHEELS AND WHEEL STOCK.

- Bollenbacher & Sons, Bloomington, Ind. 141
Spokes.
- S. N. Brown & Co., Dayton, O. 132
Superior Wheels, Hubs, Spokes, etc.
- Crane & McMahon, 38 Park Place, N. Y. 136
(Salesroom, New-York.) Spokes, Rims, etc., and Hickory, Oak and Ash Plank.
- Howard M. DuBois, Philadelphia, Pa. 154
Wheels, Hubs, Spokes, etc.
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- Hoopes, Bro. & Darlington, Limited, West Chester, Pa. 126
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.
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Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.
- Longstreth & Ayer Mfg. Co. 143
See Springs and Gears.
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- New-York Sarven Wheel Co., New-York. 144
Branch of Royer Wheel Co., Cincinnati, O. which see.
- Rochester Wheel Co., Rochester, N. Y. 144
Wheels, Hubs, Spokes, Rims.
- Royer Wheel Co., Cincinnati, O. 137
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.

- F. Seidle, Mechanicsburg, Pa. 128
Wheels and Materials. Shafts, Carriage Poles, Bows, Sleigh Runners, etc. Specialty: The Phoenix Wheel.
- Springer, Morley & Gause Co., Wilmington, Del. 156
Wheels and Wheel Material.
- Winch & Sons, Bryant, Ind. 128
White Elm Hub Blocks.

WOODWORK AND MISCELLANEOUS.

- Combination Seat Co., South Bend, Ind. 147
Perkins' Patent Veneer Seats.
- Excelsior Wood Seat Co., Columbus, O. 140
Patent Seat for Carriages and Wagons.
- E. F. French, New-York.
Built-up-wood Roofs.
- Herring & Co., New-York City.
.....3d cover page
Herring's Champion Safes.
- S. D. Kimbark, Chicago. 134
Burr Patent Bodies. Carriage and Wagon Wood Material.
- B. Miller, Paola, Kan. 125
Miller's Adjustable Horse.
- J. H. Miller, Mansfield, O. 129
Wanted.
- Swaine & Adeney, London, Eng. 144
Whip Manufacturers.
- Judson L. Thomson, Syracuse, N. Y.
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Labor Bureau.

SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," in its May, June and July issues, free of charge to all carriage mechanics seeking employment, and also to all employers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

"THE HUB," 323 Pearl-street.
New-York, April 1, 1884.

Employer's Department.

—WANTED.—A coach painter; none but a sober man wanted apply. Foote & Johnson, Wytheville, Va.

—WANTED.—Traveling salesman to sell carriage-makers' specialties on commission with present line. Address F. E. Kinsman, 145 Broadway, New-York.

Workmen's Department.

—WANTED.—Situation by a carriage smith of seven years' experience. Address A. J. Ulman, Box 1360, Wooster, Ohio.

—WANTED.—A first-class carriage blacksmith wants a steady job; has steady habits. Address C. H. Glasses, Kutztown, Berks Co., Pa.

MISCELLANEOUS.

—To TRIMMERS.—Particulars regarding a lucrative and desirable opening for an experienced carriage trimmer can be obtained by addressing M. G. Barrow, carriage painter, care Jones & Stelfox, Austin, Texas.

—To CARRIAGE MAKERS.—Those desirous of obtaining first-class mechanics in the different branches should apply to Carriage Makers' Guild, of Brooklyn, 123 Smith-street, Box E. and G., Brooklyn, N. Y. B. Murrey, Sec.



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Send for Descriptive Circular and Price-list.



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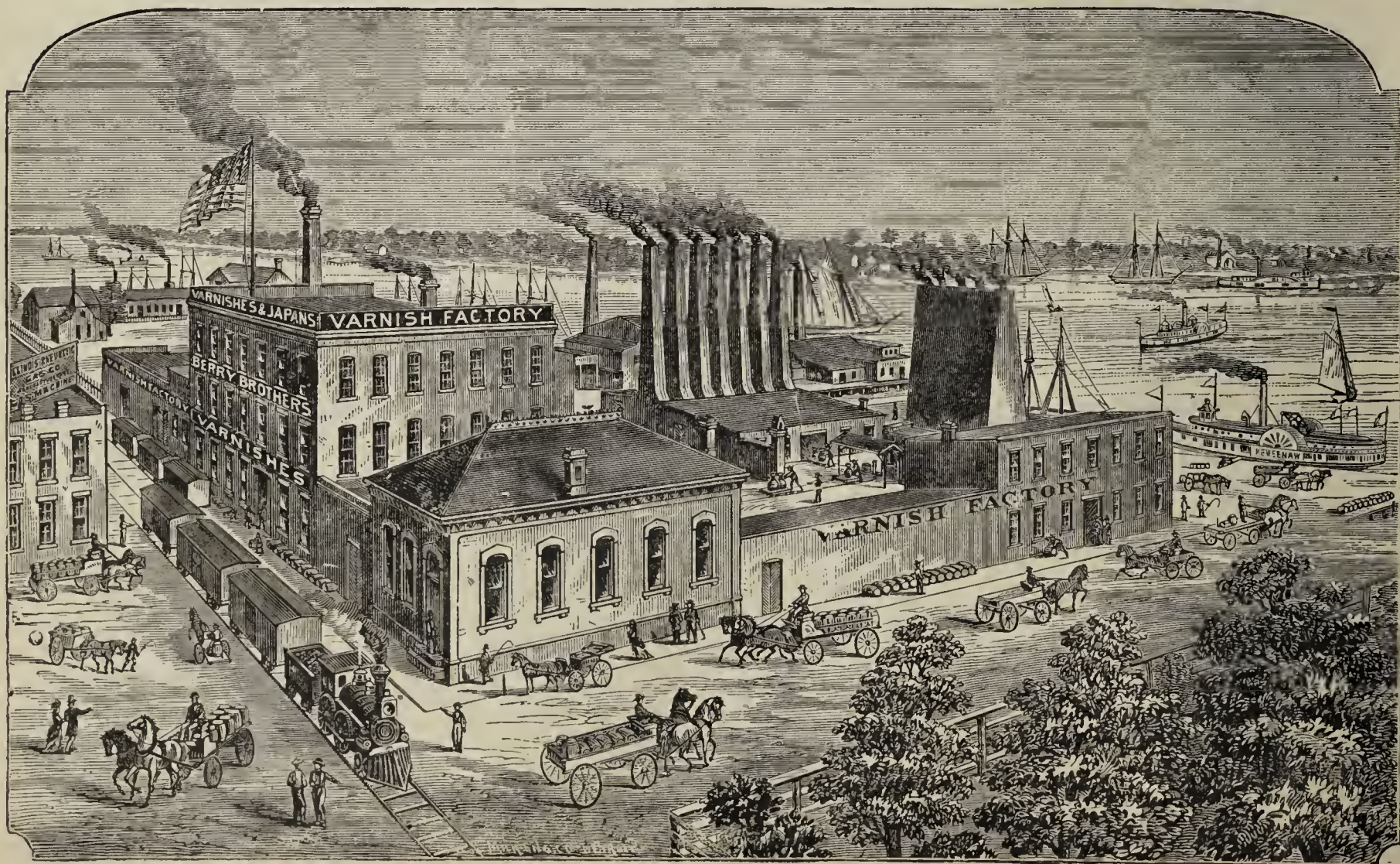


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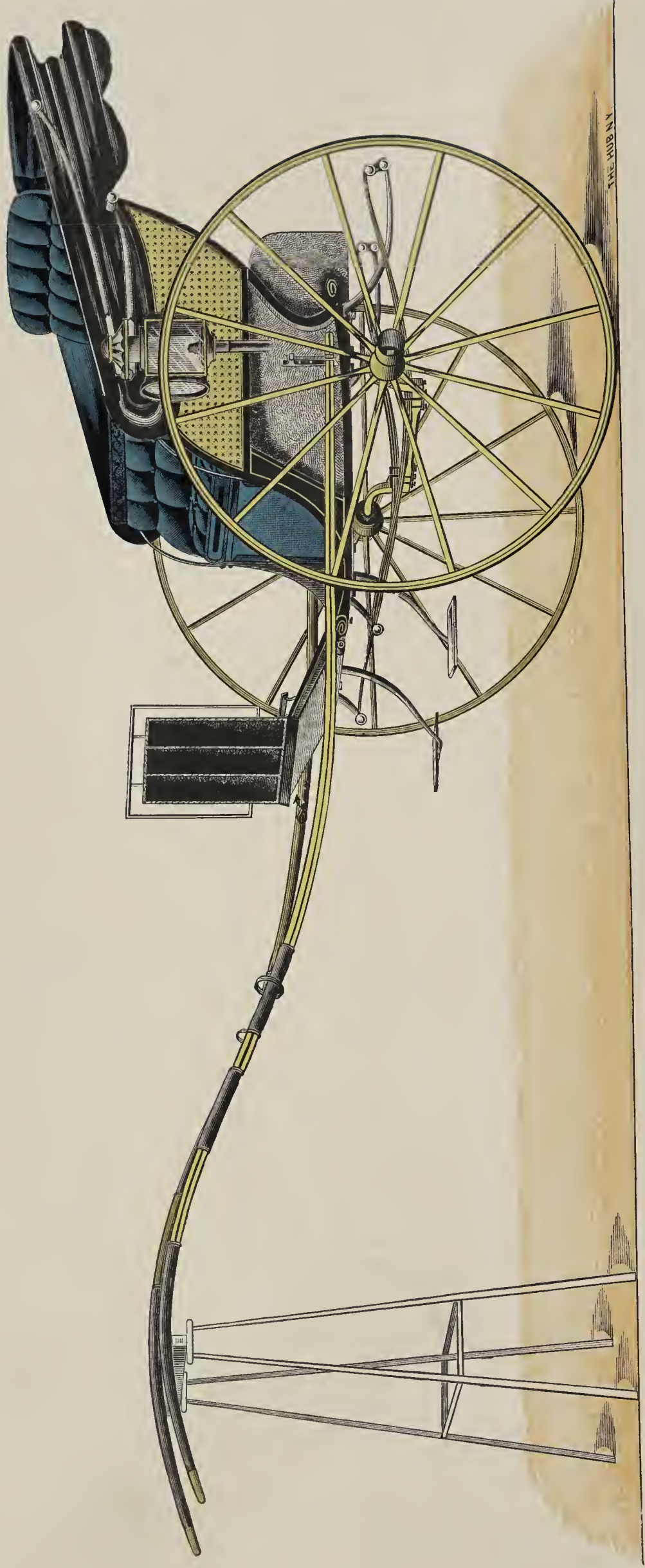
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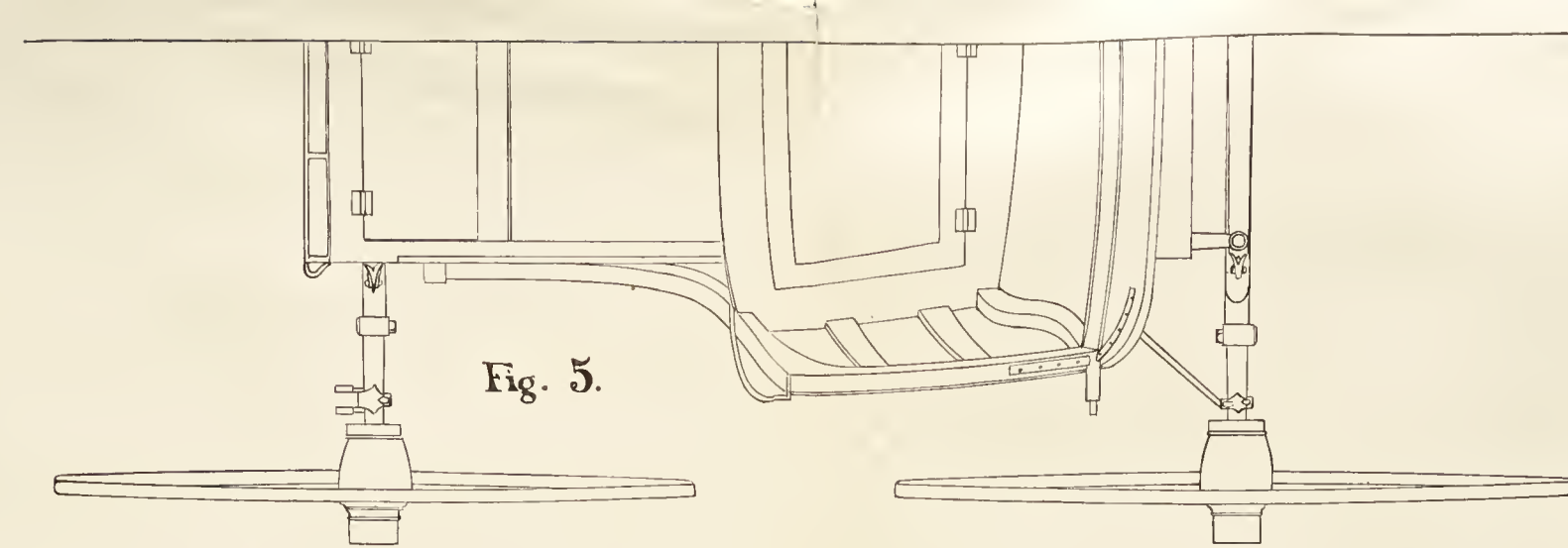


Fig. 5.

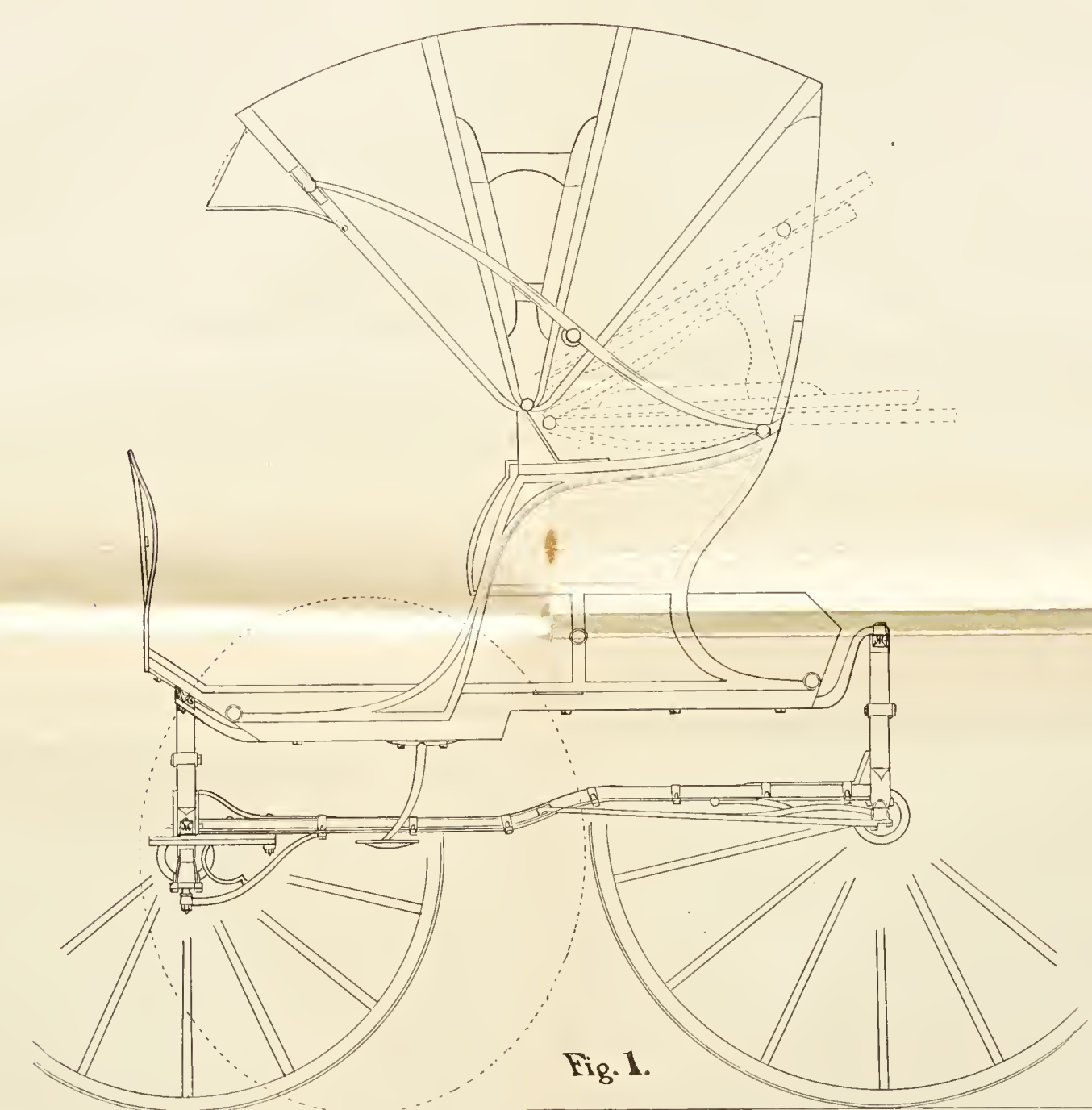


Fig. 1.

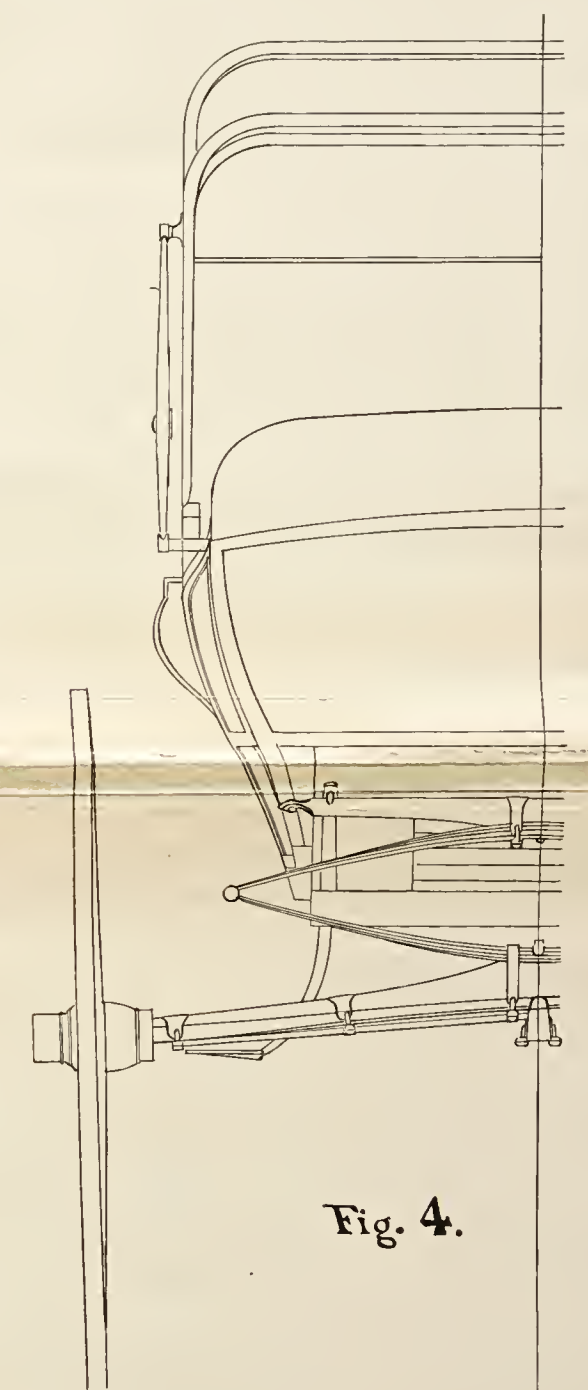


Fig. 4.

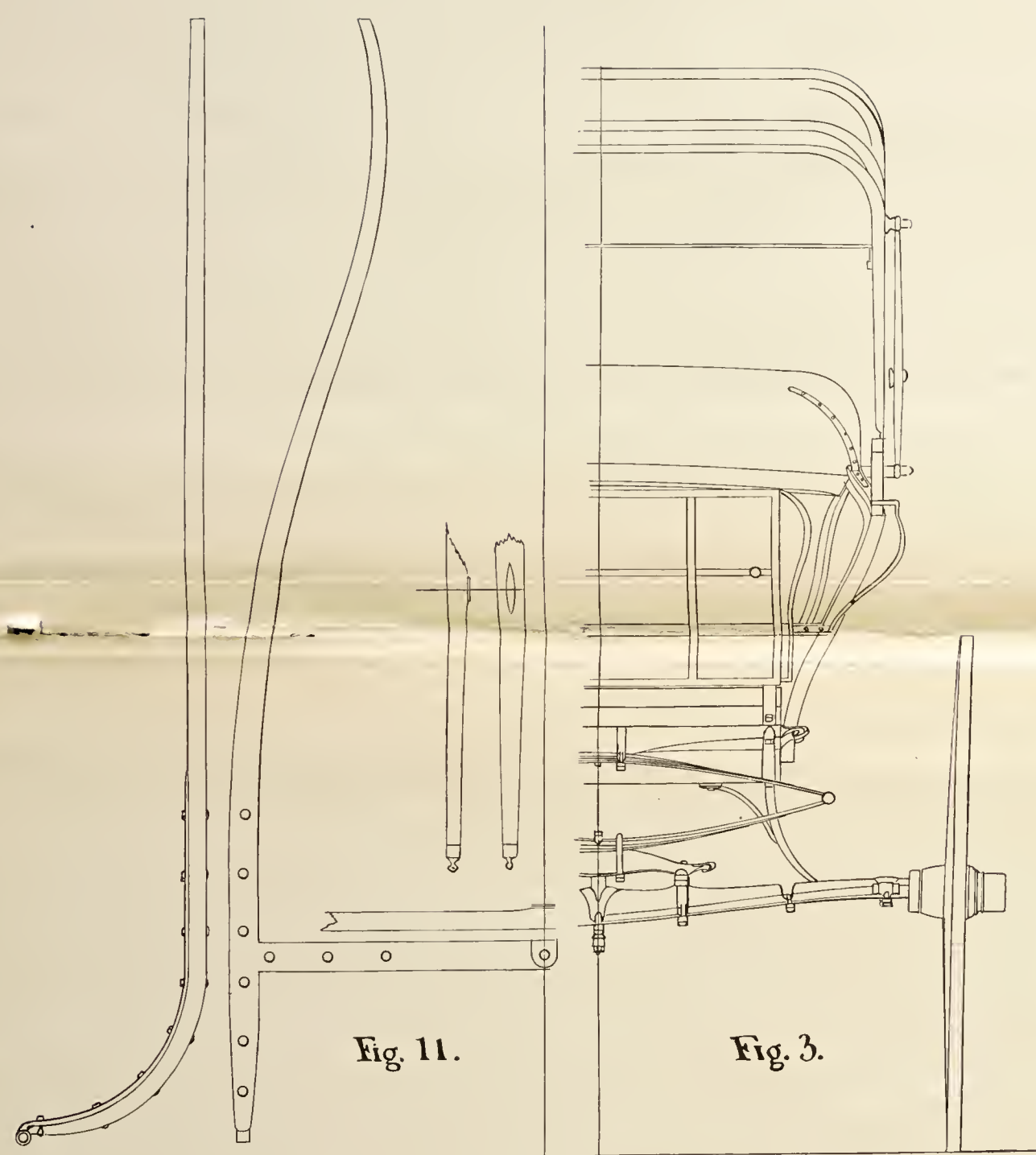


Fig. 11.

Fig. 3.

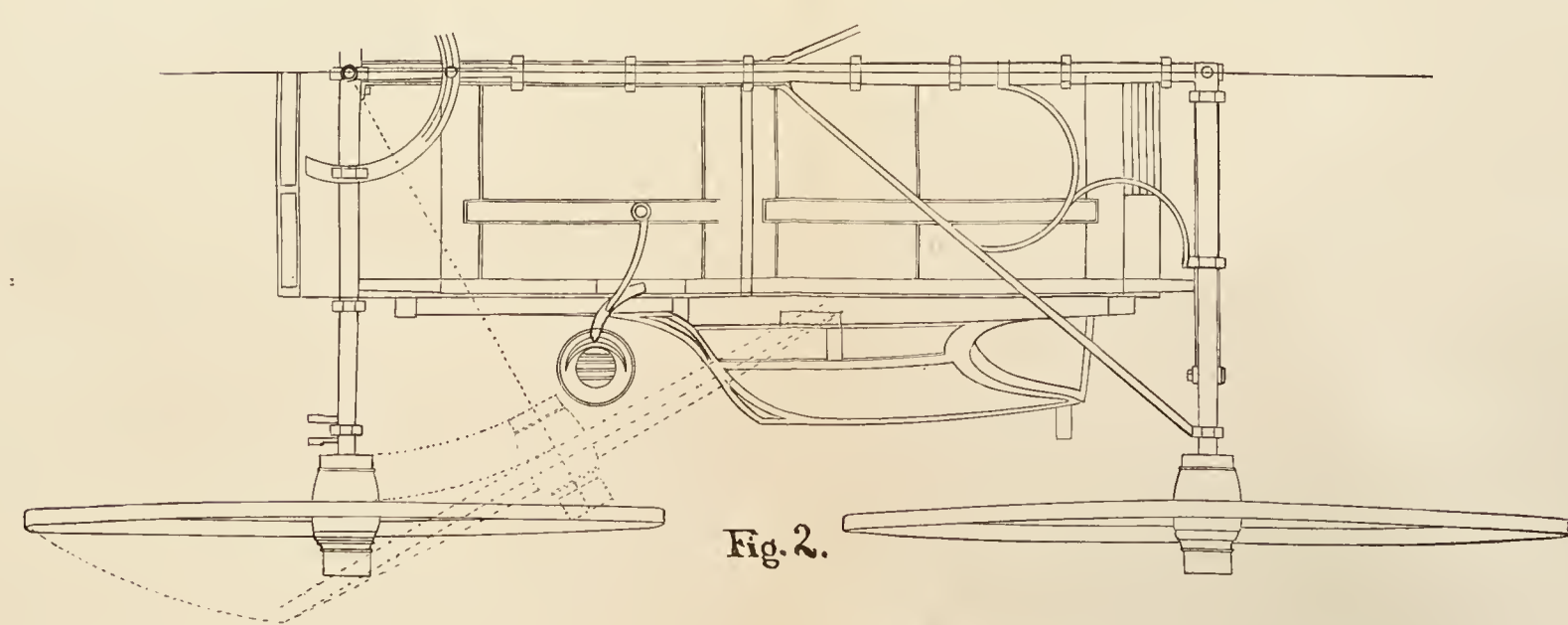


Fig. 2.

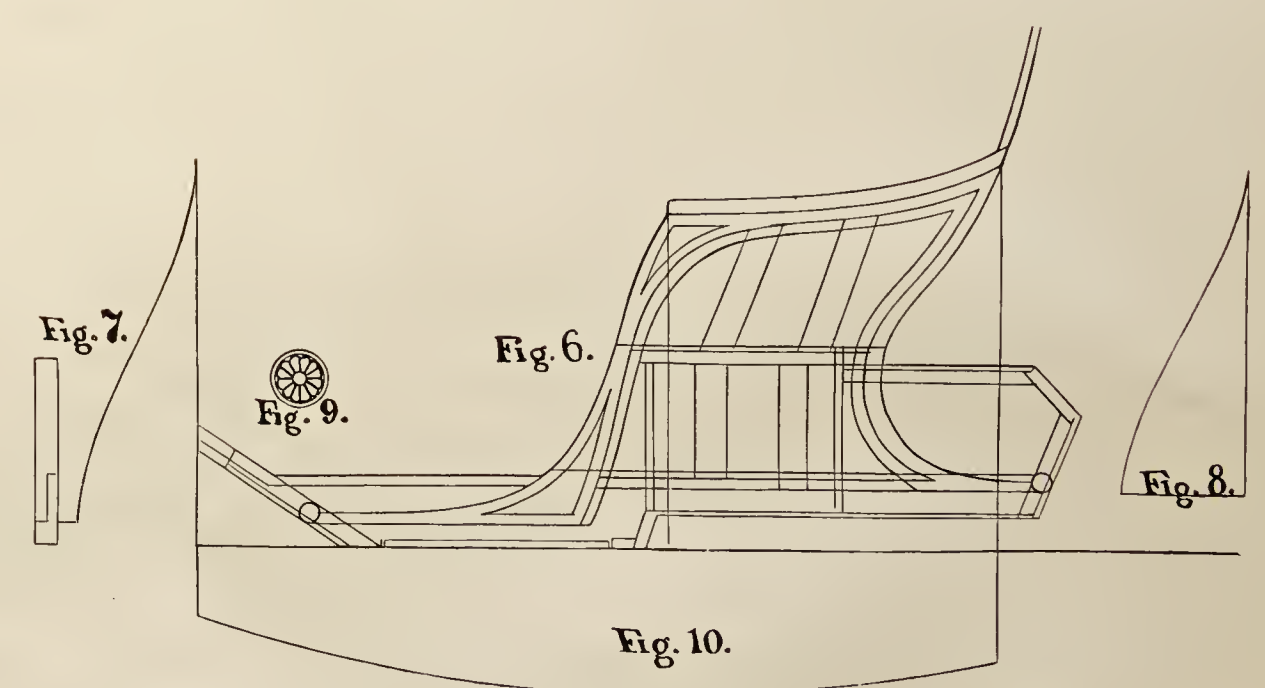


Fig. 7.

Fig. 9.

Fig. 6.

Fig. 8.

Fig. 10.

FIRST-PRIZE WORKING DRAWINGS OF PHYSICIANS' PHAETON.

BY MR. W. R. CONNOR,

Superintendent with the Studebaker Bros. Mfg. Co., South-Bend, Ind.

Awarded a First Prize, in the class of Working Drawings, consisting of \$35 in cash, together with "Hub Medal of Merit" and Hub Subscription, by the jury on award of Hub Prizes, whose Report will be found on pages 173 and 174. For mechanical description see pages 175 and 176.

THE HUB, June 1, 1884.

The Hub's

Fashion Plates: Summer Season, 1884.

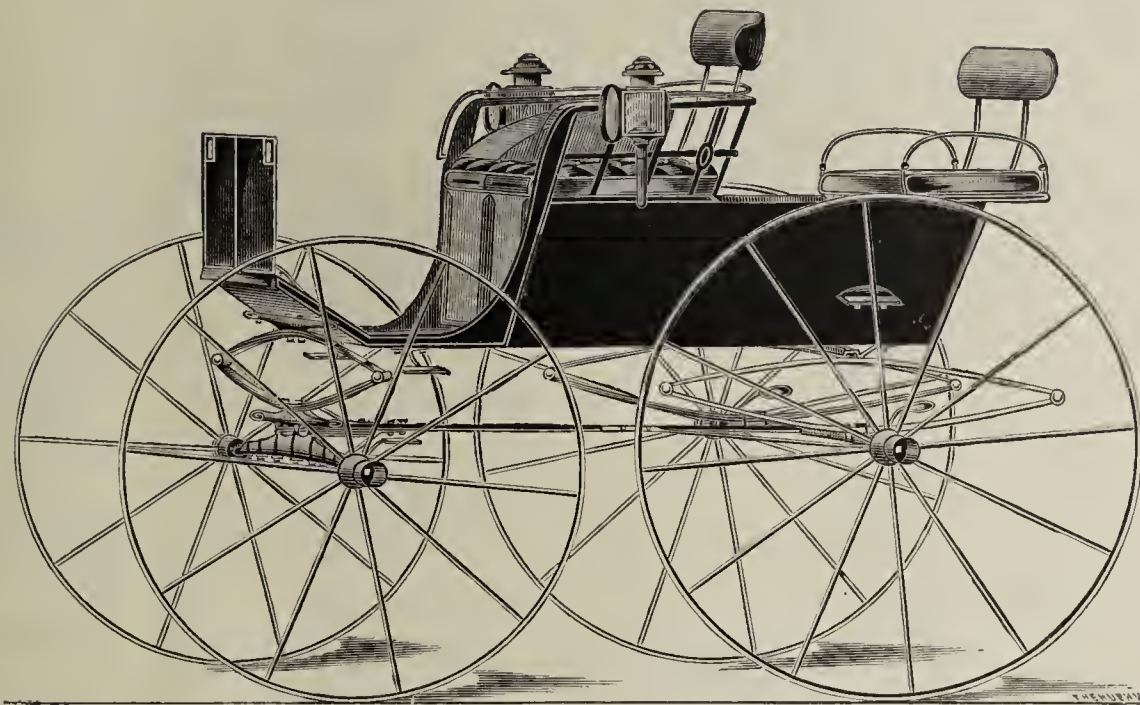


Plate No. 18. STANHOPE PHAETON, ON THREE SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 176.

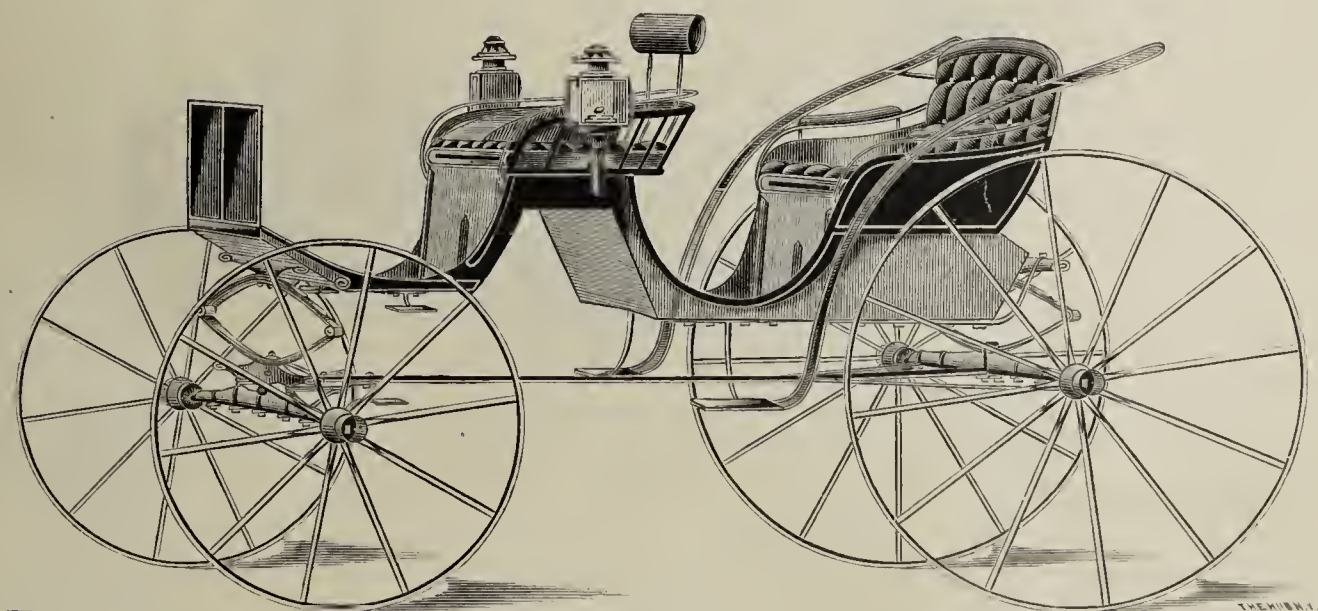


Plate No. 19. FOUR-PASSENGER OPEN PHAETON, ON TWO SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 176.

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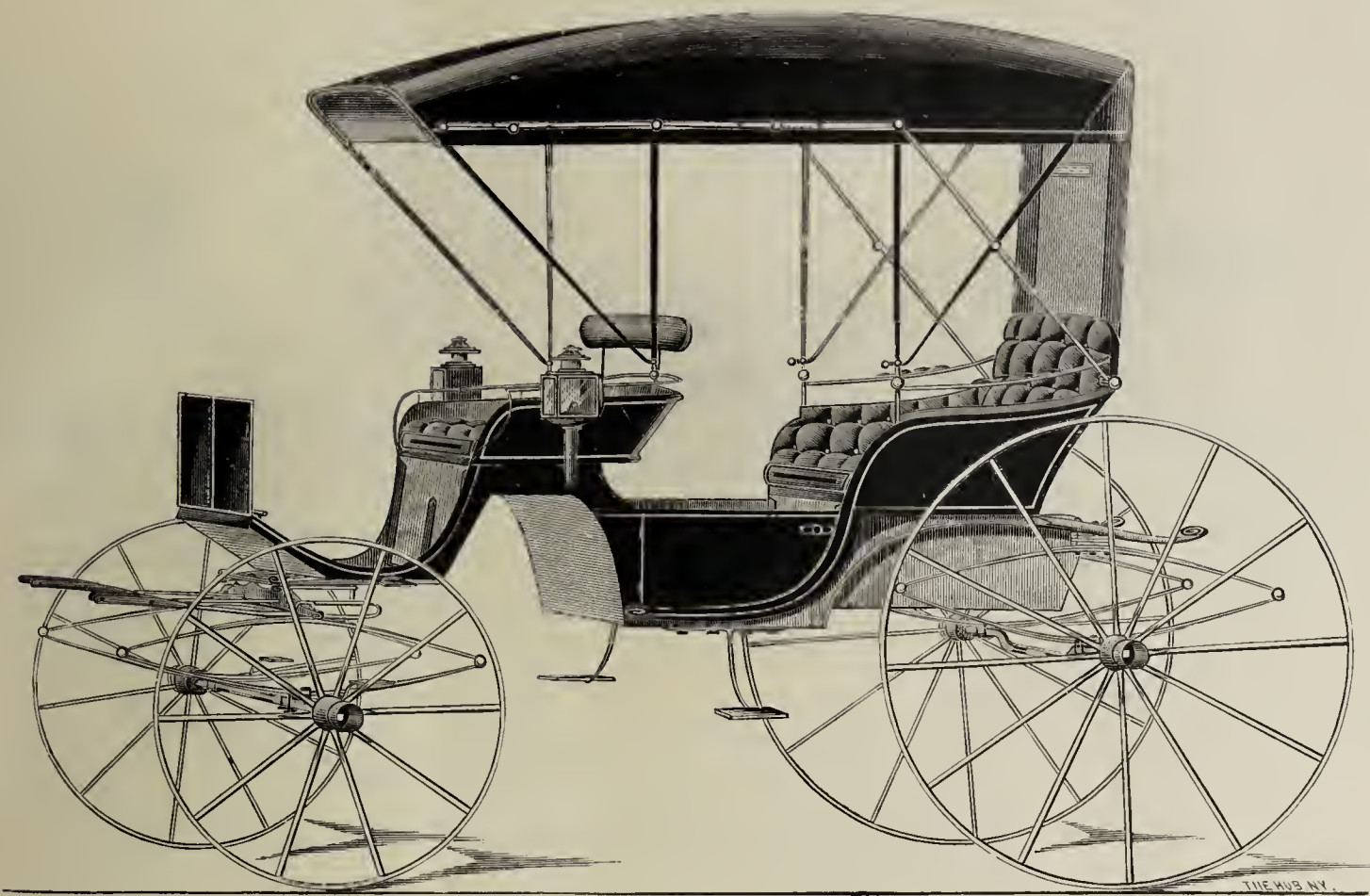


Plate No. 20. EXTENSION-TOP PHAETON, ON FOUR ELLIPTIC SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 177.

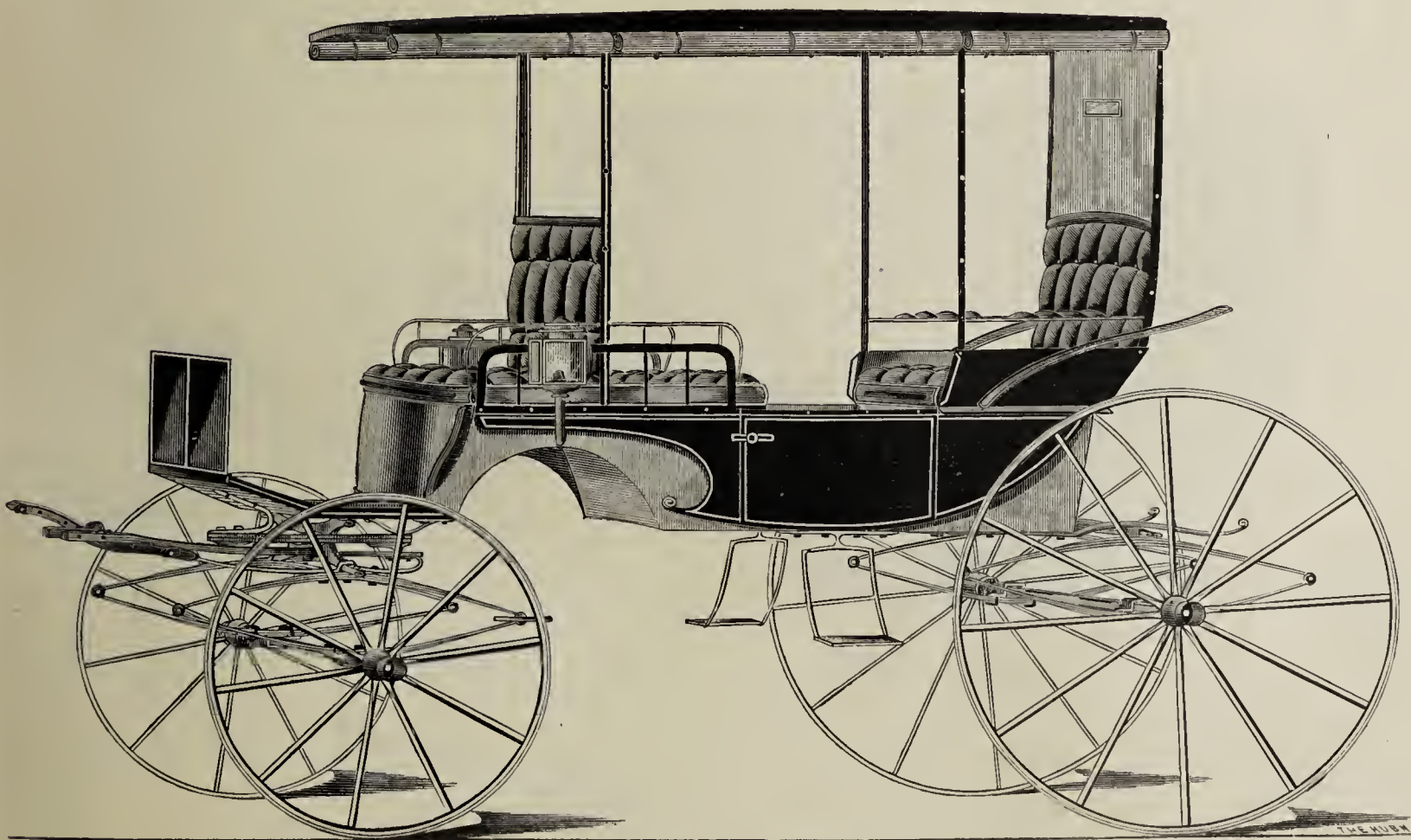


Plate No. 21. NEW-ENGLAND SIX-PASSENGER CARRYALL.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 177.

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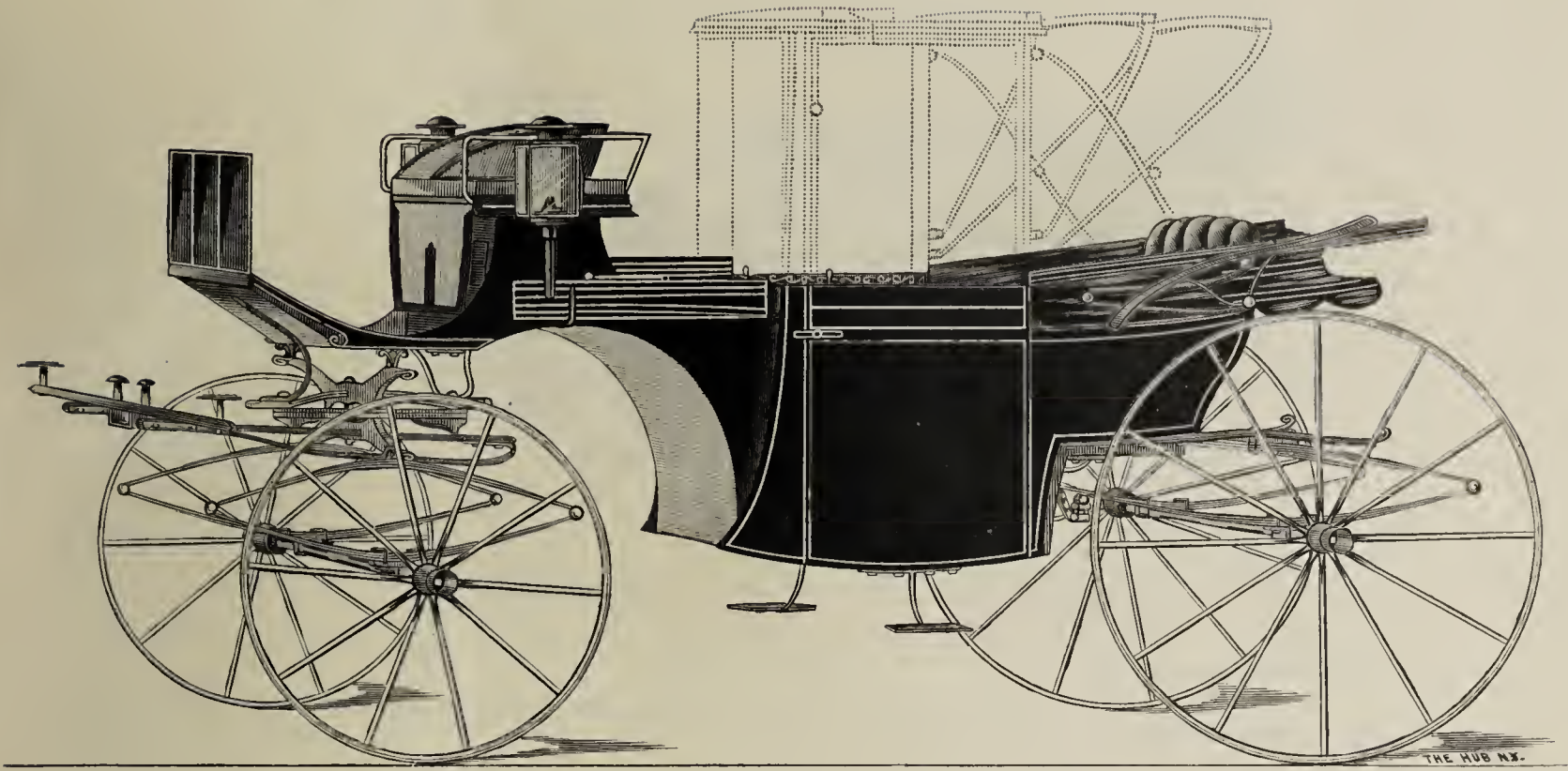


Plate No. 22. MEDIUM-SIZE LANDAULET.—Scale one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 178.

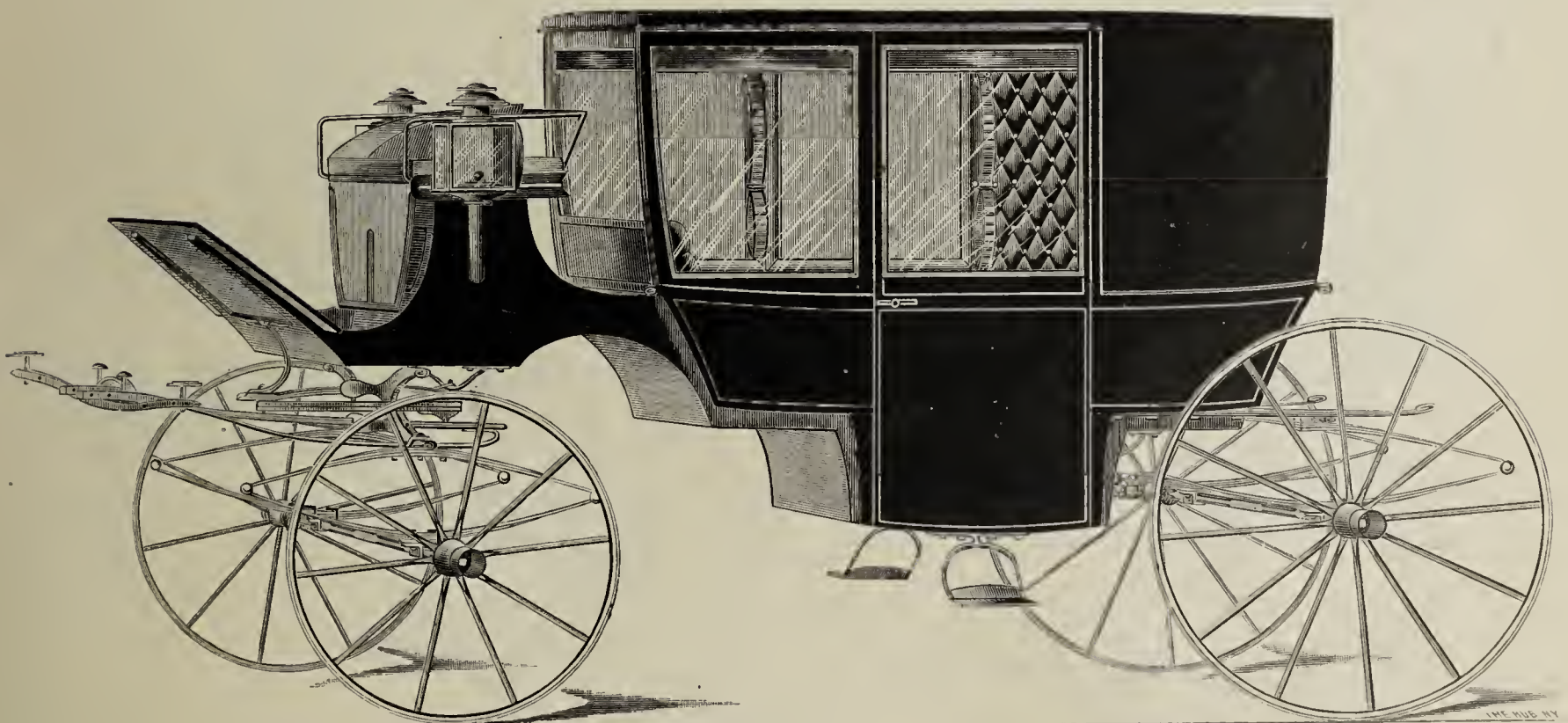


Plate No. 23. ENGLISH-QUARTER COACH.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 178.

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OPENING OF THE SEASON AT NEWPORT.—By GRAY-PARKER, FROM LIFE.

The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, JUNE 1, 1884.

No. 3.

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paintshop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.



DISTRIBUTION OF Hub Prizes FOR DRAWINGS AND ESSAYS.

THE recent competition for *The Hub's* prize offers of \$220, plus, for working drawings and essays relative to Physicians' Phaetons and Buggies, proved very gratifying, both by reason of the large number of entries called in, and the general high standard of the work presented. The working drawings, twenty-three in number, were exhibited for two weeks on the walls of the class-room of the Technical School for Carriage Draftsmen and Mechanics in this city; and they attracted much attention from pupils and visitors, particularly on the closing night of the school, April 30th, when those of the prize winners were decorated with blue ribbons, and their merits, as compared with the other entries, were freely discussed. There was evidence that the decision of the jury was generally approved; and we feel confident that their judgment will have the further endorsement of our readers when photographic reproductions of the drawings by the leading competitors hereafter appear in *The Hub*.

We present below the full text of the two reports by the Jury of Award, which together contain full particulars regarding the extent and character of the competition, and the disposition made of the prizes.

FIRST REPORT BY THE JURY OF AWARD.

NEW-YORK, April 24th, 1884.

EDITOR OF THE HUB.—DEAR SIR: We, the undersigned, have come to the unanimous conclusion that the working drawing marked "A" fills the requirements of your offer in this class. It does not come within the scope of the Dexter Spring Co.'s offer. For second prize in the same class, we award the same to "M."

We wish to call your attention to the creditable execution of the remaining drawings, and to particularly mention those marked E, B, D, K, G, F, V, C, H, P, Q, O and L, whose respective merits we have decided to be in the order named.

We also recommend the drawing of bodies by J. N., the work of "Hinty," the Poet, and that of B B B B, to your kind consideration.

In the line of trimming, we do not see anything particularly striking, although we would suggest that you hand these drawings, with descriptions, to some expert trimmer.

For ironing a Doctors' Phaeton there is but one entry, and consequently no competition, although we would call your attention to "A A"

In conclusion, we beg to say that it would be a good idea for competitors, in future similar prize offers, to omit all line shading or cross hatching, as this only creates confusion of lines, which are really not called for in working drawings. It would also be advisable to classify such drawings, so as to make a distinction between professional draftsmen and mechanics.

Signed by the
Jury on Award of
Hub Prizes: { JOHN D. GRIBBON,
J. POLYA,
JOHN C. KONRAD,
Secretary.

* * *

REQUEST FOR FURTHER PARTICULARS.

OFFICE OF "THE HUB,"

323 Pearl-street, NEW-YORK, April 28, 1884.

Messrs. GRIBBON, POLYA and KONRAD,

Jury on Award of Hub Prizes.

DEAR SIR: I have duly received your favor of the 24th inst., containing report of your examination of the drawings and essays offered in competition for *The Hub* prizes, and your decision as to the award of certain of these prizes; and you will please accept my thanks for the prompt and kind attention you have given to the matter. Permit me, however, to trouble you again, by requesting further particulars, as follows:

First: I beg to request that you indicate the number of drawings and essays which you received in competition for the prizes, also classifying them as to the prizes for which they were intended by the competitors.

Second: It appears from your report that you have been unanimous in your decision as to the award of prize number one, and you state that it does not include the Dexter additional prize of \$100; but you fail to state to whom this first prize belongs. Please add his full name and address.

Third: It appears that you have also been unanimous in awarding the second prize; but here again you fail to state to whom the prize belongs, and also whether he is entitled to the Dexter additional prize of \$25.

Fourth: You briefly allude to the essays entered in competition for the prizes under the classifications named as "Ironing," "Trimming," and "Practical Hints," and mention certain essays which you find noteworthy; but you fail to award any prizes under these classifications, and suggest that I confide this duty to other experts. Please remember, however, that I have no power to do this, inasmuch as full powers were delegated to you; and, according to a condition expressed in the published offer, every competitor agreed to abide by your decision. If you elect to call in any experts to assist you in making the awards under these classifications, you are at perfect liberty to do so; but I cannot.

Fifth: You will notice, in our prize offer, that we have agreed to present a year's subscription to *The Hub* to each competitor, not a prize

winner, whom you consider deserving of such acknowledgment. Please, therefore, append a list of the competitors to whom you would recommend presenting such subscriptions.

I beg to call your attention to one further fact, namely: The period for receiving entries expired on April 15th, but three days of grace were granted before transferring the entries to your care, in order to allow for delays in the mails. This morning a parcel from England, marked "For Competition," has been received by me through the New-York Custom-house, where it has been detained several days, and by no fault of the sender. I have immediately forwarded this parcel to you, and beg that you will use your own discretion as to whether, under the exceptional circumstances above named, it should not also be allowed an opportunity to enter into the competition.

Again thanking you on behalf both of *The Hub* and of all competitors for *The Hub* prizes, for the kind interest you have taken in a task that must necessarily have been laborious, owing to the large number of entries; and begging a response to the above inquiries at as early a date as you may find convenient, I remain, Dear Sirs,

Very truly yours, G. W. W. HOUGHTON,
Editor of *The Hub*.

* * *

SECOND AND MORE DETAILED REPORT BY THE JURY OF AWARD.

TECHNICAL SCHOOL FOR CARRIAGE DRAFTSMEN AND MECHANICS,
214 E. 34th-street, NEW-YORK, April 30, 1884.

G. W. W. HOUGHTON, ESQ., EDITOR OF THE HUB—DEAR SIR: We are in receipt of your letter of the 28th inst., and hasten to furnish you with the facts you call for.

We unanimously agree that it is only just to allow the drawing detained in the Custom-house to enter the competition, and we have duly examined its merits; but we do not find any reason, in consequence of this additional competitor, to alter the awards in the class of Working Drawings, already made known to you.

We will now report to you in detail the additional particulars which you request.

We have received from you a total of twenty-nine (29) entries for *The Hub* prizes, including twenty-three (23) Working Drawings; one (1) Design for Ironing; three (3) Designs for Trimming; and two (2) Practical Hints.

In the class of Working Drawings we unanimously award your first prize, consisting of \$35 in cash, together with "*Hub* Medal of Merit" and *Hub* subscription, to the drawing marked "A"; and we have found upon examining the sealed envelope accompanying the drawing, that this award belongs to Mr. W. R. Connor, superintendent with the Studebaker Bros. Mfg. Co., at South Bend, Ind. Mr. Connor is not entitled to the special additional prize of \$100 offered by the Dexter Spring Co., as the vehicle represented is not suspended on Dexter springs.

In the same class of Working Drawings, we unanimously award your second prize, consisting of \$25 in cash and *Hub* subscription, to the drawing marked "M," received from Mr. James Burns, of No. 214 River-st., New-Haven, Conn. Mr. Burns is also entitled to the special additional prize of \$25 offered by the Dexter Spring Co., as supplementary to your second prize, inasmuch as the vehicle represented by him fulfills the condition of the offer by being suspended on Dexter springs.

In the class of Designs for Ironing, there is but one entry, marked "A A," but we find this a creditable essay, and we award to it your prize marked III, consisting of \$20 in cash, "*Hub* Medal of Merit," and *Hub* subscription. We have found, upon examining the sealed envelope accompanying the essay, that this award belongs to Mr. R. H. Lee, of No. 214 South 5th-st., Philadelphia, Pa.

For your prize marked IV, there is no competitor, and it is therefore withdrawn; but we unanimously agree in recommending that the cash amount named in this offer, *i. e.*, \$15, be given as a special additional prize in the class of Working Drawings, to the entry marked "E," received from Mr. Albert Edward Bibbs (aged twenty years), of No. 19 Britannia Square, Worcester, England, employed as a clerk in the office of Messrs. McNaught & Smith, coach-builders, as we find Mr. Bibbs's drawing very creditable in its execution, and we consider it well worthy of this extra award.

In the class of Designs for Trimming, there are three entries; and we unanimously award your prize V, consisting of \$20, "*Hub* Medal of Merit," and *Hub* subscription, to the essay marked "B B B." Upon examination of the sealed envelope accompanying this essay, we have found no name or address inclosed; and the only clue we have to the winner of this prize is the fact that his essay is signed "Brown Paper."

We unanimously agree in withdrawing your prize VI, as, in our opinion, neither of the remaining two entries under this class is of sufficient importance to merit such reward; but we recommend that the cash amount named in this offer, namely: \$15, be awarded as a special additional prize in the class of Working Drawings, to the entry marked "B," contributed by Mr. Thos. Furmidge, of No. 13 Barton-st., E., Hamilton, Ontario.

In the class of Practical Hints, there are only two entries; and we unanimously award your prize VII, consisting of \$10, "*Hub* Medal of Merit," and *Hub* subscription, to the essay marked "A A A A," contributed by Mr. James Burns, No. 214 River-st., New-Haven, Conn.

We unanimously agree in awarding your prize VIII, consisting of \$8, and *Hub* subscription, to the essay marked "B B B B," contributed by Mr. A. Pompee, of Austin, Texas.

For your prize IX, there is no competitor, and it is therefore withdrawn; but we unanimously agree in recommending that the cash amount named in this offer, namely: \$5, be awarded as a special additional prize in the class of Working Drawings to the entry marked "D," contributed by Mr. Geo. W. Kerr, of Bridgeport, Conn.

In response to your further request, we name below such other contributors to the competition as seem to us well worthy of receiving a *Hub* subscription in acknowledgment of their very creditable Working Drawings, namely:

Mr. Frank Willard Tucker, with Chauncey Thomas & Co., 101 Chestnut-st., Boston, Mass., contributor of drawing marked "K."

Mr. Chas. Nase, No. 315 West 43d-st., New-York City, contributor of drawing marked "G."

Contributor of drawing marked "F," name unknown.

Mr. Andrew F. Johnson, No. 437 West 48th-st., New-York City, contributor of drawing marked "V."

Mr. A. Strickland, of No. 120 Napier-st., Hamilton, Ont., contributor of drawing marked "C."

Mr. George H. Smith, No. 56 Lyon Court, New-Haven, Conn., contributor of drawing marked "H."

Mr. Ebner E. Pool, No. 64 Market-st., Lockport, N. Y., contributor of drawing marked "P."

Mr. J. H. Mullin, with Baker & Brother, Lexington, Ky., contributor of drawing marked "Q."

Mr. Geo. C. Dunham, No. 115 Mound-st., Dayton, O., contributor of drawing marked "O."

Mr. H. R. Hildebrand, foreman smith with the Columbus Buggy Co., No. 593 North Lazelle-st., Columbus, O., contributor of drawing marked "L."

Before concluding our report, we desire to congratulate *The Hub* upon the wide interest aroused by its prize offers, and upon the large number of competitors it has called out,—larger, we believe, than has ever responded to the prize offers of the Carriage Builders' National Association, and with entries more interesting in several respects, and particularly because they include the work of English and Canadian, as well as American draftsmen.

We would again invite your attention to the suggestions made at the close of our former report, as to omitting all shading in such prize drawings, and as to the advisability, in future prize offers of this kind, of making a marked distinction between the offerings of professional draftsmen and of mechanics or apprentices, in order that the latter may be allowed an equal chance to win suitable honors.

All of which is respectfully submitted.

Signed by the
Jury on Award of
Hub Prizes: { JOHN D. GRIBBON,
JULIUS POLYA,
JNO. C. KONRAD,
Secretary.

* * *

We, the publishers of *The Hub*, by whom the prizes referred to were offered, fully endorse and adopt all the suggestions contained in the above reports by the Jury of Award; and we heartily thank the three members of that jury for the painstaking and conscientious manner in which they performed their duties.

In concluding, we desire, in addition to the awards above set forth, to make one further special award, in the form of a prize of \$15 in cash, to Mr. Leander J. Aubry, carriage blacksmith, of No. 66 Franklin-street, New-Haven, Conn., and on the following grounds, namely: Mr. Aubry's entry consisted of a working drawing of a Physicians' Phaeton, together with sectional cuts of the various iron parts. No description accompanied the entry when originally sent in; it followed subsequently, but then bore no distinguishing mark by which it could be connected with the working drawing. This description, when examined by the Editor, after the names of competitors had been disclosed, seemed to suggest that Mr. Aubry intended to enter under the class of "Designs in Ironing," although, in the letter accompanying his description, he distinctly states that he makes his entry as a "Working Drawing." In consequence of this statement, the Jury of Award would have been compelled to deal with it as a working drawing, even if they had been able to connect his description with his drawing. We think, however, that Mr. Aubry erred in not clearly entering in competition under the class of "Designs in Ironing;" and believing, as we do, that he would in that case have probably won a prize, we have decided to make this special additional award, equal to the cash amount named in the second prize in that class.

PUBLISHERS OF *The Hub*.

NEW-YORK, May 5, 1884.



DESCRIPTION OF CONNOR FIRST-PRIZE WORKING
DRAWING OF PHYSICIANS' PHAETON.

[Designed by Mr. W. R. Connor, Superintendent with the Studebaker Bros.
Mfg. Co., South Bend, Ind.]

(See Illustrations on Loose Sheet accompanying this number.)

IN designing a Physicians' Phaeton for general use, that is, a Phaeton that can be used for either city or country practice, which is the sense in which the writer understands the conditions, a variety of points have to be considered. As a matter of course a new style or original design must be submitted, which must be in keeping with the present taste in lines and general appearance, and which will embrace the proper requisites for a physician's comfort and convenience, which are ample leg-room, a wide, roomy and deep seat, sufficient head-room, protection from the weather when severe, plenty of room under the seat for instruments, etc., and a general appearance of solidity and substantial build that is known to be required by the profession.

Again, in presenting a design for national adoption, which the Judges' decision will certainly secure, it will have to be borne in mind that the needs of a variety of manufacturers require to be considered. Some may want to build the Phaeton as fine as possible, and for city use, which means regardless of expense, and heavy. Another may want to make it for a less fortunate member of the profession, and for city use, which means that it will have to be inexpensive, but strong. Others will require it cheap and light, and others again for a special or patented gear. In fact, the probability is that no two will make it alike, yet all may adhere to the general design.

The originality in the design which I present is, of course, left to the honorable Judges to decide upon, but I would call attention to the following points:

The body might be called a combination of the Phaeton Coal-box and Goddard Buggy. It has a bracket front, which can be made to support a child's-seat, and a Phaeton seat or quarter. It resembles the Coal-box (which, by the way, is to-day the preferred carriage for the doctor) in having the side-panel at the entrance raised above what would be the rocker line of a Phaeton, and also in having a large box at the back of and under the seat. It is unnecessary to point out its resemblance to the popular Goddard Buggy, as the first glance at the design suggests that notable carriage.

In respect to convenience and utility, this design will be found superior. It is hung low, with moderately high wheels, with a large solid step to assist entrance and exit, and, although hung on two elliptic springs, which suspension is preferred by most physicians, yet the body is equally adapted to many of the various patented gearings now in use. It can also be hung on a two-wheel gearing, and many physicians might prefer it in that form.

To the good-natured M. D.'s who sometimes take their younger patients to ride with them, the addition of the child's-seat in the bracket will be found of great convenience. It is attached to the front bar of the bracket by three hinges, allowing the seat to be lowered when not in use, fits snugly between the rockers, and is level with them when lowered, by this method it causes no discomfort to occupants of the principal seat. The extending of the front sides above the line of the pillar prevents the escape of the robes, horse-weight, etc., that may be placed in the bottom. The seat is roomy and comfortable, being 16 inches deep, and 36 inches wide; and the distance from the seat to the bracket edge, 25½ inches, is sufficient guarantee that the leg-room is ample. One striking feature of the design is the great amount of room under the seat, which is something that no physician ever complained of, and that too few have ever received.

The side pieces of the seat-frame form the center bar or bottomside of the body, to which the cross-pieces are framed. Both of these cross-pieces have a rabbet worked on them, for the purpose of supporting an extra frame that is placed between them, and the side-pieces or bottom-sides. This latter frame is attached firmly, by three hinges, to the back cross-piece, and is caned. This method is far better than the use of a solid panel, as the cane does not hold dampness, assists ventilation of the box, and gives spring to the cushion.

It will be noticed that the box under the seat is divided by a half-inch

board into two sections, the dividing board being hinged to the bottom, and throwing forward, to permit the placing and removal of objects inside. The purpose of this separate box is for the reception of what is known in the profession as *caput mortuum*, or worthless remains, a convenience that is indispensable to a surgeon, and will no doubt be greatly appreciated by them. The dividing door between the two boxes should be made to fit quite tight, so that the air from the rear box cannot enter the front one. The *caput mortuum* box should contain a tin or sheet-iron pan, made to hold saw-dust, upon which the surgeon or physician places the part removed. This pan should not rest on the bottom of the box, but be supported by blocks of wood, about one inch square, to the number of nine, placed regularly on the bottom. At least six holes should be bored through the bottom panel, ¾ in. diameter, to permit air to enter and circulate around the pan. The back view of the body shows that this box has a series of Venetian blinds, which add to the proper ventilation. The pan for sawdust must be securely fastened to the body, and have two handles on the sides. The front box can be used for the reception of instruments, robes, etc.

Attempts have been made to introduce three bows in tops intended for this class of vehicles, but without much success, as these tops have to stand hard usage, and, being made quite long, they seem to require four bows to give them the proper strength. Moreover, the side-light can be placed to better advantage in a four-bow than in a three-bow top. A decided improvement in these tops is the adoption of the single side-joint. It looks far better than two, and does not interfere with the side-light. Another improvement is the adoption of the removable back curtain, that is, a curtain that is applied and fastened with French fasteners. The top, in the accompanying design, has a hood on the front bow. Although this has a somewhat awkward appearance when down, there is no denying the fact that it serves a useful purpose in a storm; and, when made so that it can be pushed up and inside the bow, as this one does, the objection is overcome.

While on this subjects of hoods, it may be well to explain how the apron or boot should be made. It should be attached to the point of the bracket in the usual manner, and be covered neatly and snugly by the customary flap. It should be made to attach to the second bow where a continuation of the bottom line of the hood would intersect the bow. This point should also be the termination of the boot or apron. When the apron is in place, it should show, at a side-view, a nearly, if not quite straight line from the point of the bracket to the point of attachment at the second bow. This method of making the front of the apron prevents rain from beating in over the apron, but it has the objection that it also prevents the occupants from seeing the horse or objects in front of the carriage. This objection, however, may be easily obviated by placing one or two metal frames in the apron at a proper height from the seat, and about 8 in. wide, in which can be inserted mica lights.

The advantages of the style of apron above described will readily be seen. No rain can enter the vehicle from the front, and, if made with ample side-pieces, none can enter at the sides; and, although the apron reaches far above the eyes of the occupants, the use of the mica lights allows them to see through, without permitting the storm to blow in their faces. The mica allows the apron to be handled more roughly than if glass were used; and in case of damage, it can be replaced at small expense.

Rein-holes in boots are always a source of annoyance, on account of the slovenly appearance of the flap, and the inflow of water they permit. There are several ways of avoiding this, but the most perfect way is the following: Take a piece of galvanized iron, about No. 20 or No. 22 gauge, and 3 × 9 in. in size. In the center of this strip, cut an opening 6 × 1 in. Then carefully cover with harness leather, and attach it to the apron in its proper place. To make the cover for this, it is necessary to have two pieces of steel, that can be cut from a steel back stay, 4 in. long, and one piece of steel a little heavier than the stay steel, about No. 18 gauge. At the extreme ends of the latter piece of spring steel, attach permanently, by the brazing process, the two shorter pieces, so that the pieces will form right angles with each other. This should be painted with a coat of lead; and, when dry, it should be covered with the same material that the apron is made of, and attached to the same directly over the piece in the apron that is covered with harness leather, by drilling a hole in the free end of the stay steel, and a similar one in the galvanized iron piece, and riveting the two together with copper rivets. The covering on this outer frame can be fastened to the apron by stitching; which, when done, must receive a coat of India rubber cement, and be made entirely waterproof. The advantages of this method are, that the flap always retains its place, it bears freely but firmly on the reins, permits the free passage of the reins, and is actually waterproof.

There is one point in this design that will probably meet with disfavor on the part of builders, and that is the length of the body, yet it will be readily seen that for the purpose intended, it is not too long for the convenience of a physician and surgeon, and where the customer has a

physician's practice, only the body can then be shortened from two to three inches at the back end, and, by modifying the lines of the back pillar, the design will still be in good proportion.

(To be continued.)

DESCRIPTIONS OF FASHION PLATES.

OGEE-PILLAR GIG.

(See Colored Plate No. XLI.)

THE Colored Plate of a Gig, forming a part of this number, accommodates two persons, and is provided with a top, which will not only prove serviceable, but will also improve the appearance of the vehicle.

The sunken side panel on the lower part of the body projects out from the back of the body about four inches, and forms a box. The sides of this box are $1\frac{1}{8}$ in. thick, and are fitted against the middle pillars, corner-pillars, sill and seat-frame piece, and secured by glue and screws. The bottom boards at this place are not more than $\frac{3}{8}$ in. thick. The panel covering the box at the back is fitted into a miter at the ends.

The ogee-pillar is made of bent wood. The front pillar is made of one piece. Both pillars are framed into the sill. The middle piece is let in from the outside of the two pillars. The side-panels are put into the groove all around, and the moldings are rounded on the outside. A light plate is put against the sill from the inside, from the dash to the recess pieces.

The shafts are secured to the body in front by a plate projecting outside the body, the projecting portion being round; and it has a thread cut at the end for a nut. The shafts are plated at the bottom, and have a socket which fits into the projecting part of the plate fastened to the body. The back part of each shaft is connected with the body by means of the device illustrated and described in the March number of *The Hub*, page 781, under the title "Improved Method of Adjusting the Shafts of a Cart."

The shackles or body-loops must be fastened to the body in a very substantial manner. The body-loops form a half-T at the front and back. The axle is cranked downward considerably, in order to give ample leeway for the body to settle when loaded.

Dimensions.—Width of body across the front pillar, 46 in.; ditto back, $39\frac{1}{2}$ in.; and front, 33 in. Turn-under, 7 in. Height of wheels, 3 ft. 9 in., without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 12. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $5\frac{1}{4}$ in. diameter. Front bands, $3\frac{3}{4}$ in., and back, $4\frac{1}{2}$ in. diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{4}$ in. Tire, $1\frac{1}{8} \times \frac{5}{8}$ in., round edge steel.

The springs are 46 in. long, with $3\frac{3}{4}$ in. arch over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Axles, $1\frac{1}{4}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting, imitation canework for the upper panels of the body; moldings, and rest of the body, black. The moldings are striped with a fine line of yellow. Gearing, English patent yellow, with a broad stripe of black. Trimming, blue cloth throughout. The back and cushions are laid off in large squares. One raiser, an inch wide, is applied around the edges of the fall. Carpet, blue, with black figures. Mountings, brass.

STANHOPE PHAETON, ON THREE SPRINGS.

(See Fashion Plate No. 18.)

FOR this tasteful design, and the accompanying list of dimensions, we are indebted to Mr. Zenas Thompson, Jr., the well-known carriage and sleigh-builder of Portland, Maine. The original, as we understand, was built to the order of a customer in this city.

The seats are similar to those common on T-carts. The hind seat is hinged to the body, and can be turned forward and over, thus closing the upper rear part of the body. The side handles and lazy-back are hinged to the seat-frame, and must first be turned down before turning the seat. The hind seat, as will be seen on the drawing, projects more from the rear of the body than is customary on T-carts, and on this drawing the back of the body has also a trifle more flare.

The construction of the body is quite simple. It has straight sides; and the frame-work consists of the bottom sill, back corner-block, three uprights, and a top rail. The hind seat falls between the top rails, and rests on the front cross-bar of the body on two short iron plates. Another way would be to have the seat rest on the top rail. The rail is then made of sufficient depth to allow cutting out enough so that the seat, when turned, will be even with the top of the body. A half-round molding is fastened to the top of the seat to hide the joints when the seat is turned over. The Stanhope-pillar is made of ash, and two patterns

ought to be made, one by which to lay off the side elevation, and the other to work by. The front seat is made in two halves, and the near side revolves outwardly, as on a T-cart, to afford entrance to the hind seat. The top seat-rail is made either of one bent piece, or of three pieces, sawed out and spliced together with a slip tenon.

Dimensions.—Width of seat on top, $41\frac{1}{2}$ in.; and bottom, 37 in. Width of body on top, $31\frac{1}{2}$ in., and bottom, 30 in. Height of front wheels, 3 ft. 8 in.; and hind, 4 ft., without tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in., light barrel. Number of spokes, 14. Stagger of spokes, $\frac{5}{8}$ in. Hubs, $4\frac{1}{4}$ in. diameter. Front bands, $2\frac{7}{8}$ in., and back, $2\frac{1}{2}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{8}$ in. The two hind springs are elliptic, 38 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first two No. 3, and the last two No. 4 steel. Holes apart on top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{8}$ in. Axles, $1\frac{1}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of body, black; and gearing, dark green, striped with two heavy round lines of carmine. Trimming, dark green cloth throughout. Carpet, plain green. Mountings, silver.

FOUR-PASSENGER OPEN PHAETON, ON TWO SPRINGS.

(See Fashion Plate No. 19.)

THE demand for open Four-passenger Phaetons is by no means so great as for those with a stationary, extension or canopy top, and the reason is evident, for the open Phaeton cannot well be utilized as a family carriage in disagreeable weather, and it also affords no protection against the sun. Fixtures for holding an umbrella top are therefore in many instances attached to the hind seat of the body.

The body represented in this Fashion Plate shows a slight departure from prevailing patterns. The back rocker continues straight at the bottom, and a box is thereby formed with the bottom of the seat. The rear seat has solid sides, and there is a thin panel at the back as usual, $1\frac{1}{2}$ in. whitewood being sufficient, which will give the sides a good swell. The seat should project over the sides of the body $1\frac{3}{4}$ in. For fastening the sides and back corner-pillar, a frame is made, composed of three pieces, and open at the front. The back corner-pillar is lapped to the frame, and the sides are glued against the frame and pillar projecting over the back face of the back corner-pillar far enough to form the molding for the back. The back panel is then fitted between the sides, and glued to the bottom frame and back rail. The top and bottom moldings are then glued and nailed to the panel. The framework and the bar below the seat are made as light as possible. For the corner-blocks, $1\frac{1}{4}$ in. ash will do. The side rail on top of the body is $1\frac{1}{8} \times 1\frac{1}{2}$ in.

The front rail follows the sweep of the body, and is let into the rocker and top rail. The front seat has turned sticks, and round corners, and projects over the sides of the body, $1\frac{1}{4}$ in. The molding extends from the bottom of the seat to within 3 in. from the bottom of the rocker, and is set in a full $\frac{1}{8}$ in. from the outside of the seat-frame. The rocker is made of five pieces, and a thin panel is glued over the sides to hide the joints.

A canopy top, if desired, can be easily attached to the body. The body may be hung on three springs, if preferred; and in that case the body-loops will have to be swept down to meet the springs.

Dimensions.—Width of hind seat on top, 41 in.; ditto bottom, $38\frac{1}{2}$ in.; and ditto back, $35\frac{5}{8}$ in. Width of front seat on top, 40 in., and bottom, 36 in. Width of body on top, 35 in., and bottom, 33 in. Rocker-plates, $2 \times \frac{5}{8}$ in., fastened with $1\frac{1}{2}$ in. Nos. 14 and 16 screws. Height of front wheels, 2 ft. 10 in., and hind, 3 ft. 6 in., without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{5}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{1}{8}$ in. Hubs, $4\frac{1}{4}$ in. diameter. Front bands, $2\frac{7}{8}$ in.; and back, $3\frac{1}{2}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{8}$ in., round edge steel.

The front spring is elliptic, 36 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, two No. 3, and the last No. 4 steel. Holes apart, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{8}$ in. The hind spring is elliptic, 37 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2 and the others No. 3 steel. Holes apart, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{8}$ in. Axles, 1 in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the seat, dark brown; and moldings, front seat and body, black. Gearing, carmine, striped with two heavy round lines of black at a distance. Trimming, either brown cloth or goatskin

throughout. The biscuit pattern is used for the back and cushion tops. Two raisers are applied around the outer edges of the falls, with a diamond figure in the center. Carpet, brown, with red figures. Mountings, silver.

EXTENSION-TOP PHAETON, ON FOUR ELLIPTIC SPRINGS.

(See Fashion Plate No. 20.)

EXTENSION-TOP PHAETONS offer wide scope for changes in outline, suspension and finish. Some of the leading carriage repositories in this city keep constantly in stock a great variety of Extension-top Phaetons, and notably the house of A. S. Flandrau & Co., of Broome-st., where it is a rare occurrence to find two specimens exactly alike.

The front seat, in the accompanying design, is made in the usual way, with solid sides and back. It has round corners, which should never be omitted on vehicles of this class, as the distance between the front and hind seat is generally somewhat limited, and the round-cornered front seat will facilitate the ingress and egress, and prevent injury to the dresses of lady passengers. The hind seat is similar in shape to that of a Cabriolet, and is also made with solid sides. The back panel is of thin whitewood, and put into a groove at the corner-pillars. The top molding of the back is glued and nailed on after the panel has been secured to the back rail. The rail is framed $\frac{5}{16}$ in. from the outside of the pillar, and a rabbet is worked on at the bottom, the thickness of the panel.

The rocker consists of seven pieces. The extreme back rocker extends back far enough to form the pump-handle, which, although heavier looking than the iron body-loop, will harmonize better with the appearance of the body as a whole. The corner-pillars are lapped to the rocker, and project to the outside $\frac{5}{16}$ in. The sides are fitted to the pillar, forming a miter joint of whitewood; $\frac{5}{16}$ in. will not make the sides of sufficient thickness at the pillar, and they should therefore be lapped over on the rocker and pillar. The sunken bottom is glued and screwed against the inside of the rocker, and is shaved off at the front end. The rocker-plate is fitted around the offset formed by the sunken bottom, and follows the sweep of the rocker. The screws here should be of sufficient length to go through the sunken bottom into the rocker, which will require $2\frac{1}{2}$ in. No. 16 screws, the sunken bottom being $1\frac{1}{8}$ in. thick.

The seat sides project $1\frac{5}{8}$ in. over the rocker, and are worked down to $\frac{5}{16}$ in. at the corner-pillar. Due care should be observed to give the sides a nice swell. The molding extends to the wheel-house, and ends in a scroll. This molding is $\frac{1}{2}$ in. at the scroll, and even with the outside at the bottom of the seat. To gain sufficient surface for this molding, the finishing piece is made double the width of the molding at that point. A rabbet is then formed, boxed down $\frac{3}{8}$ in. The width of this boxed-down part is $\frac{3}{4}$ in. at the molding of the seat, and diminishes toward the wheel-house to nothing. The door is on a line with the rocker, and is set in $1\frac{5}{8}$ in. at the hind seat. From the outside the sunken bottom is closed at the back by a thin panel, which can be let in from the back, forming a miter with the sides; or, if preferred, the panel can be fastened directly over the sides of the sunken bottom, with a half-round bead worked on, to hide the joint. It is advisable, also, to cover the rockers on the outside by a thin panel, to hide the joints produced by splicing the rockers.

Iron body-loops are used in front, extending several inches in front of the body, and connected by an iron stay in front, having a boss in the center for the king-bolt. The fifth-wheel is welded to this stay. An additional stay is welded to the back of the fifth-wheel and body-loops. The whole is then bolted to the bottom at the front of the body, thus giving more room for the gear. The gear is all of iron, with the exception of the bottom-bed.

Dimensions.—Width of hind seat, at the top in the center, 44 in.; ditto bottom, 40 in., and at back, 40 in. Width of front seat on top, 43 in.; and bottom, 38 in. Width of body on top, $36\frac{3}{4}$ in.; and bottom, $34\frac{3}{4}$ in. Rocker-plate, $2 \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in., Nos. 14 and 16 screws.

Height of front wheels, 2 ft. 10 in.; and hind, 3 ft. 10 in., without tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{1}{2}$ in. diameter. Front bands, $3\frac{1}{8}$ in.; and back, $3\frac{3}{4}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front springs are elliptic, 37 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. Holes apart on top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 39 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart, 3 in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the seats and door panels, dark green; and moldings and rest of the body, black. The moldings are edged with a fine

line of carmine. Running-gear, green, a shade lighter than the body color, striped with two heavy round lines of carmine at a distance. Trimming, green goatskin for the body, and green cloth for the headlining and curtains. The back, sides and cushion tops are laid out in biscuits. A raiser 1 in. wide, made of the same material as the trimming of the body goes around the edge of the fall. Carpet, green, with black figures. Mountings, silver.

NEW-ENGLAND SIX-PASSENGER CARRYALL.

(See Fashion Plate No. 21.)

WE feel assured that this design will meet the requirements of a large class of builders, who have frequent calls for a light and attractive summer carriage for family use.

Such a vehicle can be constructed in various ways. The body can be made with plain sides, or in a more elaborate style, as indicated in our drawing. The suspension may also be accomplished in three different ways, namely: with four springs, as shown in our drawing, or on two or three springs. In the latter two instances a perch gear should be applied.

We have adopted sticks for the front seat, and solid sides and back for the hind seat. The finish on the sides of the body can be produced by moldings, but if a more elaborate finish is required, and cheapness is not a leading consideration, we would recommend using thick whitewood, $1\frac{1}{2}$ in. thick, glued to the outside of the rocker, and then swept to $\frac{1}{2}$ in. at the ends. We would call attention to the fact that the thickness of $1\frac{1}{2}$ in. whitewood at the door would cause the screws used to fasten the hinges to enter the long grain of the whitewood, which should be avoided as much as possible. To overcome this objection, we advise having the standard pillars, back and front, project $1\frac{1}{8}$ in. outside of the rocker. The whitewood sides are then let into the pillars within $\frac{3}{8}$ in. of the outside surface. This will permit the screws for fastening the hinges to enter hard wood. The moldings on the front and back quarters are worked on, and rounded on the outside.

The rockers consist of four pieces. From the back of the wheel-house to the back of the body is one piece. The top face of this rocker will follow the sweep of the molding at the back, leaving a margin to glue the whitewood to. From the lock-pillar, to the front of the front seat, is one piece, reaching from the bottom of the body to the bottom of the seat. This will require a heavy piece of timber, but will avoid a great amount of frame-work. The whole of the front rocker is covered on the outside by a thin panel, to hide the joints.

One glass is used for the front. The front pillars are lightened on the outside to $1\frac{1}{4}$ in. thick. All the pillars are even with the outside of the seats, and have a shoulder; they are glued against the inside of the seat-panels. Plates are fastened against the inside of the pillars, reaching up about 18 in. from the top of the seat-frame, and forming an angle at the bottom end about 5 inches long, to take four screws. The back of the hind seat extends $\frac{3}{4}$ in. above the sides. This is for the fastening of the back panel, which is also let into the back corner-pillars, and glued over the back-rail. The back is framed in from the back face of the pillars $\frac{5}{16}$ in., the thickness of the panel. The joints produced by the panel-pillars and seat back are covered with a light half-round molding. The corners of the top are provided with corner-plates, and the pillars at the front of the hind seat have a T-plate at the top. The top is covered with boards, and patent enameled duck.

Dimensions.—Width of body on top, 38 in.; ditto bottom, 35 in.; ditto seat, on top, $44\frac{1}{2}$ in.; ditto bottom, 40 in. Rocker-plates, $2\frac{1}{2} \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Height of front wheels, 3 ft. 2 in., and hind, 4 ft., without the tire. Depth of rims, $1\frac{3}{8}$ in. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, 5 in. diameter. The front bands are $3\frac{1}{2}$ in., and the back, $4\frac{1}{4}$ in. diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{4}$ in. Tire, $1\frac{1}{8} \times \frac{5}{16}$ in., round edge steel.

The front springs are elliptic, 39 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 39 in. long, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the fourth No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{4}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the panels between the moldings, on the sides of the body and hind seat, dark green; and moldings, and remainder of the body, black. Running-gear, dark green, with a medium stripe of black, and two medium lines of carmine at a distance. Trimming, green morocco throughout. The backs and cushions are laid out in squares. The falls have two raisers of the same material. Carpet, green, with red figures. Mountings, silver.

MEDIUM-SIZE LANDAULET.

(See Fashion Plate No. 22.)

UNTIL recently Landaulets ranked among the most fashionable of city carriages, but at present they have seemingly lost some of their former popularity. The causes leading to this decreased favor are by no means clear, and we are inclined to look at it as merely a passing freak of fashion. It cannot be disputed that the Landaulet is one of the most convenient carriages ever produced, especially with the great improvements of the last two years in methods of folding the top. Its utility is two-fold, it being equally adapted for summer or winter use, and the manipulation of the top, with modern appliances, is effected in a short time and with little exertion.

The Landaulet represented in the accompanying design is of medium size. We have applied the ogee sweep to the back corner-pillars, which are made of bent wood. The bottom sweep at the door has more curve than formerly, to harmonize with the prevailing style. In the bodies of Landaulets or Landaus, accurate framing is always of great importance, even more so than in the case of Coaches and Broughams. A heavier rocker-plate is also demanded, which must be well secured to the rocker, as this plate is the main support to keep the body from sagging or settling. The coupé-pillar is screwed and glued to the boot rocker. The front of the top drops forward and into the boot, as usual. Provision is also made to store the circular frames in the boot.

The front seat cannot be made of great depth, as the circular front measures only 12 in. from the back face of the coupé-pillar. Such front seats usually project considerably into the opening for the door, and are then rounded off at the corners. In this case, the seat projects into the doorway about 5 in. In most instances these seats turn on a pivot, and may then be turned up and fastened against the front back; while in other cases the seat is made stationary. The former method is preferable. The trimming of such Landaulets at the front consists generally of a simple roll around the circular piece; and, at other times, of a squabbed back, left loose at the bottom. Whenever the front glass-frames are to be placed in the boot or removed, this back is raised. In front of the boot provision is made for a box in which to place the apron, wrench, brushes, etc.

Dimensions.—Width of body at the hinge-pillar, 50 in.; at the coupé-pillar, 45 in.; at the back, 42 in., and at the dash, 32 in. Turn-under, 3 in. Rocker-plates, $3\frac{1}{2} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws.

Height of front wheels, 3 ft., and hind, 3 ft. 9 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, $5\frac{1}{2}$ in., and hind, $5\frac{3}{4}$ in. diameter. Front bands for front hubs, 4 in., and back, $4\frac{3}{4}$ in. diameter. Front bands for hind hubs, $4\frac{1}{4}$ in., and back, 5 in. diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{8} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 38 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are platform. The side-springs are 40 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Holes apart on top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The cross-spring is $39\frac{1}{2}$ in., from center to center, with $4\frac{1}{2}$ in. arch over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Axles, $1\frac{5}{8}$ in., Collinge patent. Width of track, front, 4 ft., and hind, 4 ft. 8 in., from out to out.

Finish.—Painting of the doors, quarters, and back panel, dark blue; and moldings and boot panels, black. Gearing, blue, a shade lighter than the body, with a broad stripe of black, and two medium lines of light blue. Trimming, blue goatskin for the lower hind back, front back and cushions, and blue cloth for the sides, upper back, falls, doors and head-lining. The upholstery of the backs, lower quarters and cushion tops is laid out in large diamonds. Broad-lace is applied around the edges of the doors and falls. The driver's-seat is trimmed with blue cloth. Carpet, plain blue. Mountings, silver.

ENGLISH-QUARTER COACH.

(See Fashion Plate No. 23.)

WHILE we do not claim to present anything strikingly new in the outlines of the accompanying design, yet certain new features deserve mention. The shape of the front and back corner-pillars is slightly concaved instead of being rounded, and a scroll projects at the front and back at the arm-rail, forming a finish. For the front and back corner-pillars, bent wood is used, extending up to the arm-rail, the upper part being spliced to it. The rocker is made of seven pieces, spliced together in the usual manner. The hinge and lock-pillars are glued to the rockers, and secured from the inside with screws.

The moldings on the doors are worked on, and the panel is put into a groove. This practice of working the moldings on the doors has not found favor with some carriage-makers, who still adhere to the method of gluing the moldings to the pillars and panel, claiming that there is no gain in the first mentioned method. While we do not dispute this claim, especially where a brass molding is fastened to the door panel, the flange of such molding covering the end grain of the panel; yet when the wooden molding extends to the bottom of the door, the end grain of the panel is liable to show after the carriage has been in use for a time, which is a defect that will never occur when the moldings are worked on, and the panel put into a groove.

The front quarter glass-frames are made to shift, and are stored in the boot. Glass quarters may be placed at the back, instead of solid quarters, if desired, and would make a very attractive vehicle, although this style has apparently failed to gain much favor. The firm of Messrs. Geissel & Bayha, of Philadelphia, exhibited at the Centennial Exhibition an eight-glass Landau which was highly praiseworthy in design and workmanship, but for some reason, it did not meet with general favor. About twelve years ago most coaches were supplied with shifting quarters, and could be changed in some cases into four different styles, namely: with curtain, glass or solid quarters, or solid quarters at the back and glass quarters at the front. While this system has its advantages, it has also its defect, which is the increased cost of labor and material. The fitting of the shifting quarters, and the insertion of the contrivances holding the quarters in their place, if not done with great accuracy, will cause the frames to rattle in a short time, to the great annoyance of the occupants. Moreover, the frames are liable to warp, and to make a bad joint, which is especially observable at the front and back corner-pillars. Several coaches have been built lately with shifting quarters, but in almost every instance to order.

Dimensions.—Width of body at the hinge-pillar, 51 in.; ditto at the lock-pillar, 51 in.; ditto at the back, $42\frac{1}{2}$ in.; ditto at the front, $42\frac{1}{2}$ in., and at the dash, 34 in. Turn-under, $3\frac{1}{2}$ in. Rocker-plates, $3\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ No. 20 screws.

Height of front wheels, 3 ft., and hind, 3 ft. 8 in., without tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{5}{8}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, $6\frac{1}{4}$ in.; and hind, $6\frac{1}{2}$ in. diameter. Front bands for front hubs, $4\frac{5}{8}$ in.; and back bands, $5\frac{3}{8}$ in. diameter. Front bands for hind hubs, $4\frac{7}{8}$ in.; and back, $5\frac{5}{8}$ in. diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, 8 in. Tire, $1\frac{1}{4} \times \frac{7}{16}$ in.

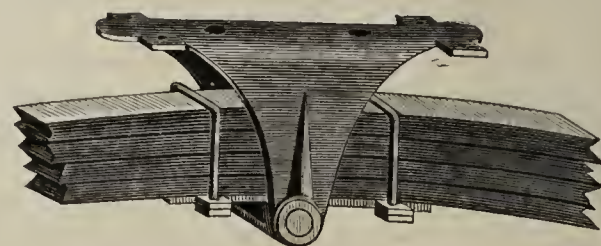
The front springs are elliptic, 39 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first No. 2, the next three No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. The hind springs are platform. The side-springs are 41 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. The cross-spring is $39\frac{1}{2}$ in. from center to center, with 5 in. arch over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Axles, $1\frac{3}{8}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of body, lower quarter, boot and door panels, dark blue; and moldings, and the rest of the panels, black, with no striping on the body. Running-gear, blue, a shade lighter than the body, with a full stripe of black. Trimming, blue cloth for the lower part of the body, and satin of the same color for the upper part. The backs and cushions are tufted. Broad-lace is applied around the doors and falls, and blue cloth for the driver's-seat. Carpet, blue. Mountings, brass.

FOUR-PASSENGER SPRING WAGON, WITH NOVEL SUSPENSION.

(See Fashion Plate No. 24.)

WE are indebted to Mr. Geo. F. Thompson, of Oshkosh, Wis., for the sketch and dimensions of this wagon. The body presents no specially new points, though the design is a standard one; but it is the mode of suspension that deserves particular attention.



Round corners are applied instead of the usual square ones, and are made of wrought iron. The sills and cross-bars are mortised together, and the front cross-bar is made heavy enough to act as the spring-bar. The front spring is neither clipped nor bolted to the bar, but works in an oscillator, and for better illustration we have introduced a cut of the oscillator. The oscillator is clipped to the cross-bar of the body.

A plate having a boss forged on the bottom face is clipped to the bottom of the spring; and a hole is drilled through this boss for the reception of a bolt. The advantage of this arrangement is that, when driving over rough ground, the body will not be subjected to such strain as if the spring were fastened to the spring-bar in the usual manner by bolts or clips, as the spring in this case follows the raising or lowering of the wheels without moving the body. This oscillator is patented by Mr. Thompson.

The hind portion of the body is suspended on platform springs, which are provided with an equilateral spring coupling, also patented by Mr. Thompson. The equalizer is attached to the body, and the side-springs are coupled to the equalizer. This is claimed by the patentee to be a desirable feature, as it gives the spring freedom of action when the vehicle is loaded. The most noteworthy feature on the gearing is the construction of the perches, of which Mr. Thompson is the inventor and patentee. These perches are clipped together in the center by clips, and bent apart on the ends. They are clipped to the top of the hind axle, and fastened to the inside face of the head-block, by this arrangement forming a strong brace. The perches are $1\frac{1}{4}$ in. thick each way, and rounded nicely. No bolts are used in the fastening of the perches to the axle and head-block, clips alone being employed. The seats have round iron-bound corners. A wide lazy-back is used for the hind seat, and a narrow one for the front seat.

Dimensions.—Width of body, 2 ft. 10 in. Width of seat on top, 41 in., and at bottom, 36 in. Height of front wheels, 3 ft. 8 in., and hind wheels, 4 ft. 2 in., without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{1}{4}$ in. Patent wheels are used. Tire, $1\frac{1}{8} \times \frac{1}{4}$ in., steel. The front spring is elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the rest No. 3 steel. The hind springs are platform. The side-springs are 38 in. long, from out to out, with $5\frac{1}{2}$ in. arch over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, and the rest No. 3 steel. The cross-spring is $38\frac{1}{2}$ in. long, from center to center, with 6 in. arch over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Axles, $1\frac{1}{8}$ in. Both axles and springs are of the Liggett Spring and Axle Co.'s make, Pittsburgh, Pa. Track, 5 ft., from out to out.

Finish.—Painting of body, black; and of running-gear, dark green, striped with two medium lines of carmine. Trimming, green morocco for the backs, cushions and falls; with carpet to match. Mountings, silver.

DETROIT ICE-WAGON.

(See Fashion Plate No. 25.)

THE design of this ice-wagon has been reproduced from a photograph sent us by the builders, Messrs. E. Chope & Sons, of Detroit, Mich., who have also kindly furnished the principal measurements. The above-named firm make a specialty of heavy business vehicles, such as trucks, drays, carts, lorries, etc., and have an enviable reputation for mechanical skill.

The appearance of this ice-wagon is sufficient to recommend it to the attention of all builders interested in this class of work. The sides of the body are divided into three spaces. The top is covered with heavy white canvas. The lower part of the body is paneled, and divided into two sections. The upper panel is $8\frac{3}{4}$ in. wide, and the lower panel $17\frac{1}{2}$ in. wide between the top rail and the sill.

In the construction of the body four sills are used, the two outside ones being $4\frac{1}{2} \times 2$ in., and the two inside ones 2×3 in. All four sills are plated with heavy band iron. To securely fasten the lower panel, there are nine uprights on each side of the lower section of the body, and three in front. It is imperative to have these uprights, as well as all other parts of the framework of the body, made of the very best timber, and white oak will be found preferable, as it best withstands dampness. These uprights are all mortised into the sills and top rails, and chamfered, which will make a nice finish. White lead should be applied to all mortises and tenons, before putting them together. The foot-board is connected with the body by five iron plates, bolted to the uprights and bottom cross-bar. The upper board is connected with the lower body by four iron plates secured by bolts. By removing these bolts, the upper board and top can readily be removed.

One of the requisites of any vehicle intended for transporting ice is to have the running-gear strong enough to meet all emergencies, as heavy loads of ice are conveyed, and often over very rough streets. The springs especially have to be of such strength as to prevent all possibility of the wheels, when turning, from striking the body when loaded. The body should be hung at least 6 in. higher than the wheels, to allow leeway for the wheels when the wagon is loaded, and care should be observed that the springs are of sufficient strength. Instances have come to our observation where the front wheel on a loaded ice-wagon, in turning a corner, was locked under the body with such force as to necessitate partly

unloading the wagon before it could proceed. All liability to such accidents can be prevented by using springs of sufficient bearing capacity.

Dimensions.—Width of body, 3 ft. $9\frac{1}{2}$ in., inside. Height of front wheels, 3 ft., and hind, 4 ft. 2 in., without the tire. Depth of rims, $2\frac{1}{2}$ in. Size of spokes, $2\frac{3}{4}$ in. Hubs, 9 in. diameter. The front bands are $7\frac{1}{4}$ in., and back, 8 in. diameter. Length of hubs, 11 in. Tire, $2 \times \frac{3}{4}$ in.

The front springs are platform. The side-springs are 44 in. long, from out to out, with 4 in. set on the inside. Width of steel, $2\frac{1}{2}$ in. Number of plates, thirteen, namely: the first five No. 2, the next five No. 3, and the last three No. 4 steel. The front cross-spring is 44 in. long, from out to out, with 4 in. set inside. Width of steel, $2\frac{1}{2}$ in. Number of plates, thirteen, namely: the first six No. 2, the next five No. 3, and the last two No. 4 steel. The hind springs are platform. The side-springs are 44 in. long, from out to out, with 4 in. set on the inside. Width of steel, $2\frac{1}{2}$ in. Number of plates, fourteen, namely: the first seven No. 2, the next five No. 3, and the last two No. 4 steel. The cross-spring is 44 in. long, from out to out, with 4 in. set inside. Width of steel, $2\frac{1}{2}$ in. Number of plates, fourteen, namely: the first eight No. 2, and the next six No. 3 steel. Axles, $2\frac{1}{2}$ in., octagon centers. Track, 5 ft. 6 in., from out to out.

Finish.—The color used in painting such wagons varies greatly, as nearly every ice company has its own distinguishing colors for both bodies and gears. We would, however, recommend for the body-panels of this design, a medium shade of blue, and frame-work black, and gearing black, with a broad stripe and two full round lines of black at a distance.

APPRENTICES IN THE BROOKS LOCOMOTIVE WORKS.

THE following circular, issued by the Brooks Locomotive Works, of Dunkirk, N. Y., January 21, 1884, contains practical suggestions on the apprenticeship question which we cordially commend to the carriage trade.

"From and after Jan. 21, apprentices will be admitted to service in these works under the following rules, and no deviation will be made therefrom:

"An applicant must possess a good moral character; must be 18 years of age, with a fair knowledge of the ordinary English branches of education, and write a legible hand.

"Applications must be made to the office in writing, and must be written by the applicant.

"An applicant must possess a natural aptitude for mechanics, and have a settled personal desire and purpose to become a skillful and competent workman.

"The term of service for apprentices will be three years. "The compensation for the term will be: First year, $7\frac{1}{2}$ cents per hour; second year, 9 cents per hour; third year, $11\frac{1}{4}$ cents per hour. Ten hours constitute one day's work.

"Apprentices will be required to attend the night schools such evenings in the week as may be designated for such purpose. Tuition and books are furnished free of charge, and from the date above mentioned attendance in the night school will be obligatory upon all apprentices who enter our service thereafter.

"Neglect of this privilege will be considered cause for immediate dismissal from our service.

"This company cannot guarantee continuance of service during the full term of apprenticeship, as the ability to do this must be regulated by the condition of their business, but they will do the best possible for their apprentices."

* * *

The following additional circular further expresses the company's intentions:

"It is the intention of this company to institute a high standard of excellence among their apprentices.

"First, by refusing all unfit applications, and

"Second, by using special endeavors to offer them every advantage to become not only skillful and competent workmen, but also to educate them in the principles underlying mechanical construction, and afford them opportunities to study and practice elementary mechanical drawing. Hence no applicant will be accepted until a full investigation of his character and elementary education is made.

"An applicant must be 18 years of age; must make application in his own handwriting through the mail addressed to our office; and must be prepared to furnish credentials of his character, education, and aptitude for mechanical pursuits.

"Applications proving satisfactory upon investigation will be placed on file in the order of their application, and accepted applicants will be advised when their services are required."



CARRIAGE-PARTS, WITH SPECIAL REFERENCE TO PLATFORM WORK.

LECTURE BY MR. H. G. SHEPARD, OF NEW-HAVEN.

(Continued from page 101 in last number.)

[The following is a continuation of our full stenographic report, expressly prepared for *The Hub*, of the lecture delivered by Mr. H. G. Shepard, of New-Haven, Conn., on the evening of Wednesday, Feb. 20th, before the Class in Carriage Drafting and Construction connected with the Metropolitan Museum of Art Technical Schools, New-York.]

PRACTICAL VALUE OF FREE-HAND DRAWING.

MR. BRITTON: If Mr. Shepard will excuse my interruption, for it is not about carriage-parts—I would like to say just here that we have recently started in connection with the school what is called the “Chautauqua System,” that is, education of pupils by correspondence. We have issued a first series of lessons in free-hand drawing, in the hope that they will teach the pupils the elementary principles of design, and so that they can handle the pencil or chalk somewhat differently than if it were a mere stick. Our efforts, however, have met with some opposition. Some of the wise young men throughout the country believe there is nothing in these little sweeps, and curves, and lines of beauty that we give them to copy; they think these have no connection whatever with carriage-building,—and, in the shops where they work, it is perhaps true, and “pity ’tis ’tis true.” One very intelligent pupil living in the State of New-York, recently wrote the instructor a letter, in which he made a call for more useful instruction papers, saying that he was “tired of chromos, and altogether disgusted;” and he sarcastically added that if we would “keep them we would save some postage,” but he would come in again “when we got to high art.” [Laughter.]

I looked at this young gentleman’s specimen drawing. He, very evidently, was handling a stick; he knew nothing of a pencil. I wrote him that he was too ambitious; that, if he would become a carriage draftsman, he should first learn to make curved lines, and that these very lessons in free-hand drawing, which he had been receiving with such ill grace, were evidently just what he needed. I added, “If your guardian had aimed to make you a canal boatman, instead of a carriage-maker, you would doubtless have desired to be captain on the first voyage, when you should have been driving the mule on the tow-path.” [Laughter.]

That is an example of the sort of prejudice with which this school committee sometimes meets. The American lad, as a rule, is too ambitious. He comes to a school of this kind for a few months, and then he wants to be foreman of a big shop. [Laughter.] Mr. Polya teaches the higher class here, composed of the pupils who are most advanced. One young man stopped coming to our school because he “understood that Mr. Polya was going to give up.” That young man cannot make a simple line, and yet he wants to jump right into high art and the science of the business.

Please pardon me, Mr. Shepard, for breaking in upon your lecture with these remarks; but I hope no other pupil will make the mistake which I have endeavored to point out. If he can go to the blackboard and do a little work like that [pointing to an elaborate scroll on the blackboard, made by one of the teachers], it is very proper then that he should ask for something higher to do; and, as soon as he knows more than the teachers in the school, he can go for the French prize, and attend Albert Dupont’s school in Paris. Everybody would be glad of his success. But, while he is here, and ignorant of many things which he requires to know, I hope he will content himself with the preliminaries first.

MR. SHEPARD: There is a great deal of wisdom in what your chairman has said, and I would say to the boys who cannot see any use in this free-hand drawing, that, until you become expert in free-hand drawing, you can never be a designer of any account. Remember that if you are going to climb a hill, you must not think of jumping from the base to the summit. You must go up step by step until you get to the top. Knowledge is gained in the same way. Do not imagine you can skip the lower steps.

TEMPTATIONS OFFERED BY CUSTOMERS.

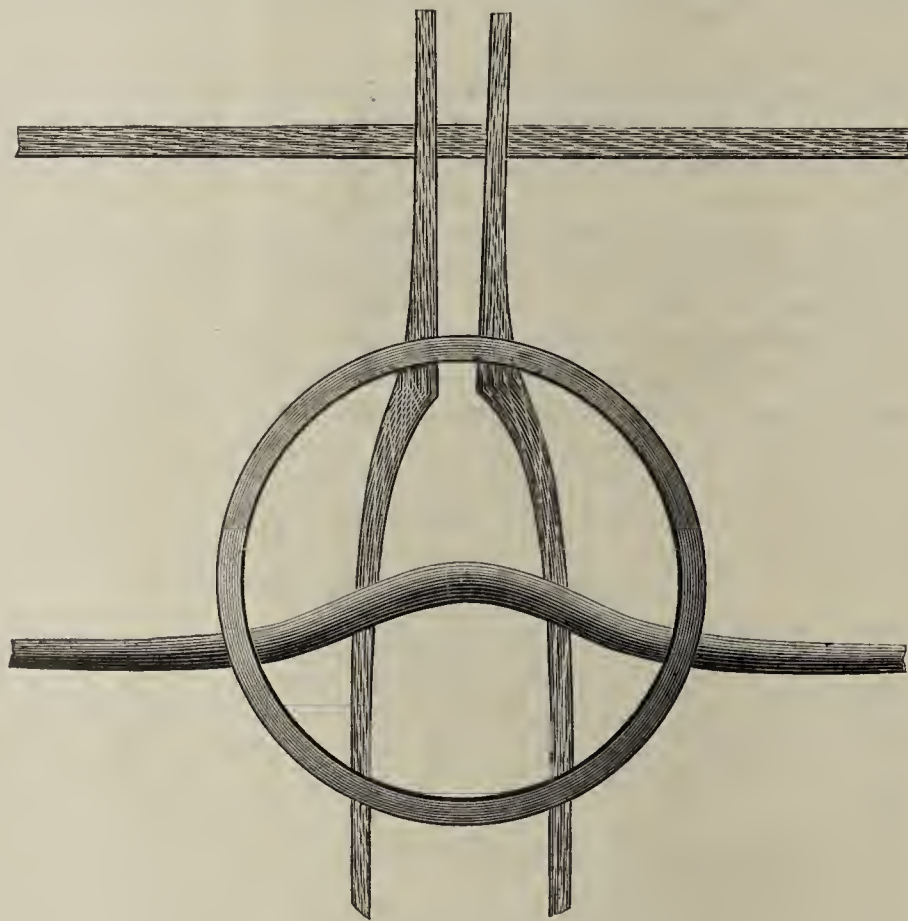
MR. BRITTON: It occurs to me, in connection with this branch of your subject, “Harmony between the Carriage-part and the Body,” how often it happens that a customer will come in and say: “I want a carriage to

weigh a thousand pounds.” The body is made, but, if the right sort of carriage-part is put under it, it will weigh eleven hundred pounds. Then he goes to work fighting against harmony, and the worst of it is—he always wins. His order compels us to get the weight down to a thousand pounds, but we thereby spoil the appearance of the vehicle. The question arises, What is the builder to do? He is after the money, and he is too often satisfied if he can only get that, and come within the weight called for. This kind of temptation often proves embarrassing to the character and standing of a carriage-builder; but I hope the young men of this school, when they get to be bosses, will not make the mistake of being misled by such temptations.

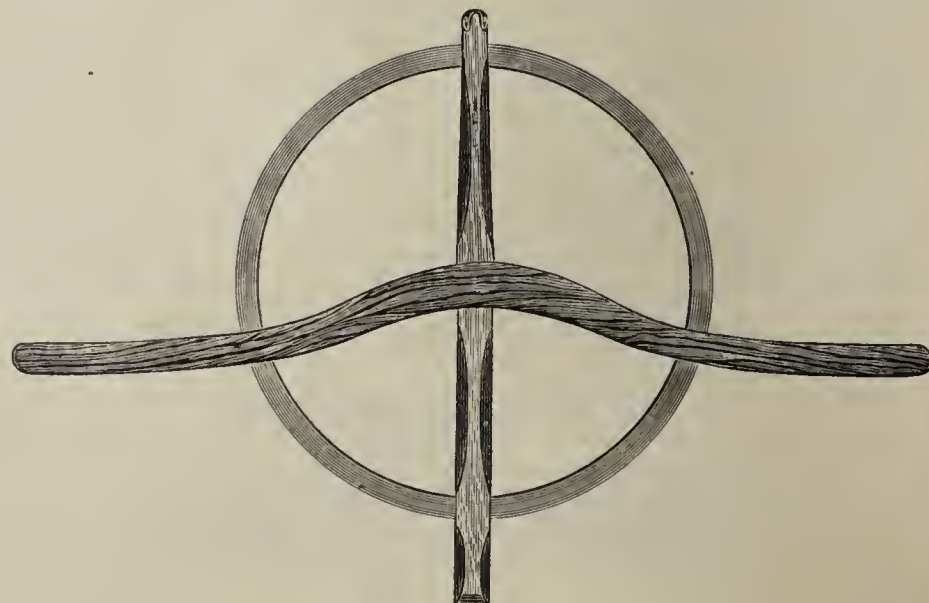
MR. SHEPARD: Reputation is certainly worth more than temporary money gain. If a customer should call on me to sacrifice my reputation to his views, I would let him go elsewhere. I have known carriage orders to be filled for Rhode Island, where the track is, I believe, 5 ft. 4½ in. I have seen one-man buggies made with a 5 ft. 4½ in. track. They were the most outrageous things I ever saw. I could never see how any builder who cared anything for his reputation could build such things, for it is of course impossible to have a buggy with that width of track have any harmony about its design. Rhode Island ought to change its track. I don’t know why the people there have such a wide track, unless it is because they want to ride with one wheel in Connecticut and the other in Rhode Island, and thus save building roads. [Laughter.]

HARMONY BETWEEN DIFFERENT PIECES OF THE CARRIAGE-PART.

If you have no further questions to address to me, I will now turn to the third part of my subject, which relates to harmony between the different pieces of the carriage-part.

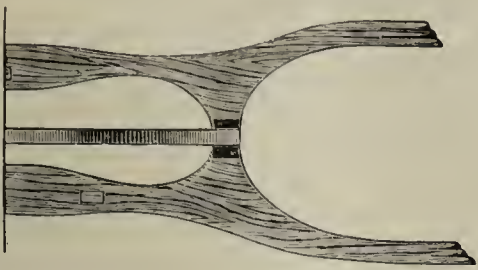


You can make a carriage-part so that its various parts will have no harmony with one another. Mr. Gribbon, who has prepared for me these illustrations on the blackboard, has generally observed very good har-

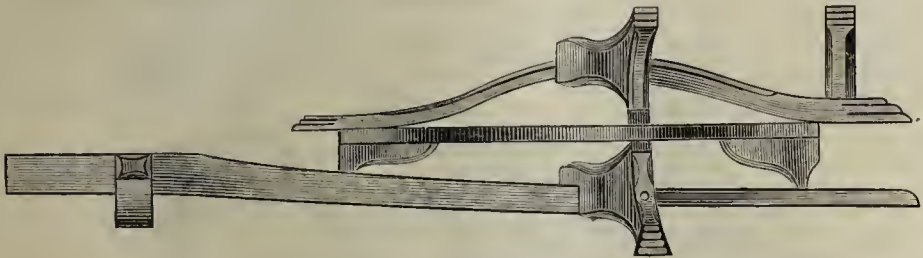


mony. I will show you, however, where a little disproportion comes in according to my judgment. This is a well proportioned draft, with perhaps one or two exceptions. The bulge and the sweep in the center of the bed are not precisely right. There is not the harmony in the sweep of this bed that there should be. I think you can detect the slight defect. Here comes the stay around, to meet the back end of the futchel. Now,

if this futchel was curved, and showed a little inclination to meet the stay, I think it would be more in harmony. We often see a very crooked bed on a carriage-part of this kind, but such a bed throws a carriage-part



out of proportion, and gives too much wheel in front of the bed, and too little back of it. Then again, we often see these futchels spread so far apart at the back end, that the bearing comes away out, and leaves too much of the back part of the fifth-wheel unsupported. I think it is too



short between those two parts, and too long between those. [Indicating.] This carriage-part is not, in my opinion, in perfect harmony, though I do not detect any other special points of departure from a harmonious whole.*

EVENER-BARS VS. STIFF DRAW-BARS.

MR. BRITTON: Do you favor the stiff draw-bar, or an evener-bar on the carriage-part of a large vehicle?

MR. SHEPARD: That depends on whether I want to kill the horses or not. If I do not care how much I irritate the horses, I would use a stiff draw-bar; but if I wanted to make the horses feel easy, I would give them one that would swing easily.

MR. BRITTON: You know that the prevalent notion is, that you cannot make a complete town carriage without the stiff draw-bar.

MR. SHEPARD: Yes, and that is because the hackmen are practical men, and they will have evener-bars, while those who can afford vehicles for pleasure do not want them to appear like public hacks, and so they put on the stiff draw-bar. I will admit that a stiff draw-bar makes a nicer looking carriage-part than the evener-bar, but it is not practical. For business I should use an evener-bar every time. If I wanted to be aristocratic, and have my carriage a little different from the hackmen, I might be led to put on the stiff draw-bar, but it would be sure to worry my horses.

MR. BRITTON: My experience with coachmen is, that our colored brother, who prefers very little work in driving his horses, wants them to drive themselves, and he consequently wants an evener-bar; while the best coachman—the man who has a good seat, and holds his hands in the right position, and has command of his horses—wants a stiff bar, because his eye is never off his horses, and he keeps them together; but with the latter it requires constant attention to keep a pair of horses together that are not exactly of the same spirit. A lazy man wants to sit at ease on his box, with a slack rein, and let the horses drive themselves.

MR. SHEPARD: Yes, what Mr. Britton says about keeping the horses even is quite true. With a stiff draw-bar one horse cannot get ahead of the other; but I would like to ask Mr. Britton if the objection I gave to a stiff draw-bar does not hold good in spite of that objection.

MR. BRITTON: I think it does, because any man can drive a pair of horses with an evener-bar.

MR. SHEPARD: Don't you think a stiff draw-bar is hard on horses?

MR. BRITTON: Yes, and in hot weather it is particularly apt to bother them.

MR. SHEPARD: It certainly causes more chafing on the collar.

MR. PRAY: But does not that depend upon the road?

MR. BRITTON: Yes, somewhat; but it would depend still more on the comparative spirit of the horses.

MR. SHEPARD: To continue, I would add that a carriage-part may be out of harmony when the futchels are too heavy for the bed, or the fifth-wheels too large for the spread of the springs. It may be out of harmony when the iron of the fifth-wheel is too large. It may be out of harmony when one bed is straight, or nearly straight, and the other much curved. For instance, if this were a very low bed, and its mate were a very full deep one, with a heavy sweep, it would be out of harmony. This sweep here is in harmony, and is as it should be. If this bed were low and

straight, and the other had a higher sweep than it has now, it would then be out of harmony. These points you can easily see, and I hardly need to point them out. The best way to discover any defect of this kind is to stand off a little way, and see if there is harmony. It is something you can readily detect, if your eye is cultivated,—better than I can describe it.

INDIVIDUALITY OF DIFFERENT MAKERS' PRODUCTS.

MR. BRITTON: It is a common remark that the vehicle built by any well-known manufacturer can be recognized as it goes along the street. There is an individuality about it. I have often asked myself the question: "In what respect is this individuality exhibited?" That is a pretty difficult question to answer, but I believe the answer is comprised in the one word, *harmony*. One builder will make his carriage-parts and bodies in perfect harmony; while another man fails to do this. The one who doesn't, certainly individualizes his work just as much as the other, but he does it by the lack of harmony. Mistakes with him become chronic. I have seen pretty well-built carriages, with the outlines of the bodies and carriage-parts all good, but where, for instance, the brake-head in the back of the body would turn up in a very abrupt way, and spoil every line in the carriage, because it was made offensive by the turn it had. There was nothing to harmonize with it. I used at one time to stand in the street and be able to tell one builder's carriages by the mistakes in his brake-heads. This is only one proof of the correctness of your theory, for the brake-head is really a portion of the carriage-part, although it is often made with the body. Sometimes it is made of iron, and sometimes of wood let into the bottom of the sill; but I take it that, in its effect, at least, in the completed vehicle, it is a portion of the carriage-part. That little brake-head has destroyed the appearance of many a vehicle otherwise well designed.

MR. SHEPARD: It takes but a small blemish to destroy a very fine picture, and it is just so with a vehicle. A little defect on a portion of the carriage-part is liable to do great harm, if it does not entirely spoil the appearance of the vehicle as a whole.

POINTS TO CONSIDER IN DESIGNING A CARRIAGE-PART.

Now, gentlemen, we come to a topic of considerable practical value as regards sweeps and designs made by the carriage-part maker. The most important portion of the carriage-part lies between the bearing of the fifth-wheel and the spring on the bottom bed. This is the most difficult portion to sweep. You must start from a straight line where the bed leaves the spring, on the inside, and commence to rise with that line (indicating). As you rise, you come in conflict with the line above, because you must have it taper there. This, by the way, is the weakest point in the entire carriage-part. Between the bearings of the fifth-wheel, it is supported by the top and bottom plates; but from the fifth-wheel bearing to the end underneath, it is supported only by the bottom plate and the stays; and it is subjected to the twisting action that occurs whenever the carriage wheel strikes an obstruction. In consequence we very often find that, right here, the carriage-part first gives out. Carriage-part makers do not all understand this point, and, in directing the building of a coach, they too often make this the weakest point, when it should be the strongest.

Another point worth considering is this. The carriage-part maker will often taper his bottom bed, and make the plate narrower at the point between the fifth-wheel bearing and the spring, than at the center. This is a mistake, for the reason that this is the weakest point, and needs more strength than any other part of the bottom bed. In sweeping a carriage-part, when making the design, the bottom bed needs to be wide on the bottom. It needs, in fact, to be laid out very much as the Dutchman out West built his fence. He lived in Iowa, where they have those tremendous blizzards and tornadoes, and where the wind blows like a ward politician running for office. This Dutchman was troubled with his fence blowing down, and he conceived the idea of making it wider than it was high, so that when it blew down, it would be higher than when it stood up. [Laughter.] Now this bottom bed needs to be built in the same way. Then, when the iron is put on, you will have it higher than it is wide, and in good proportion.

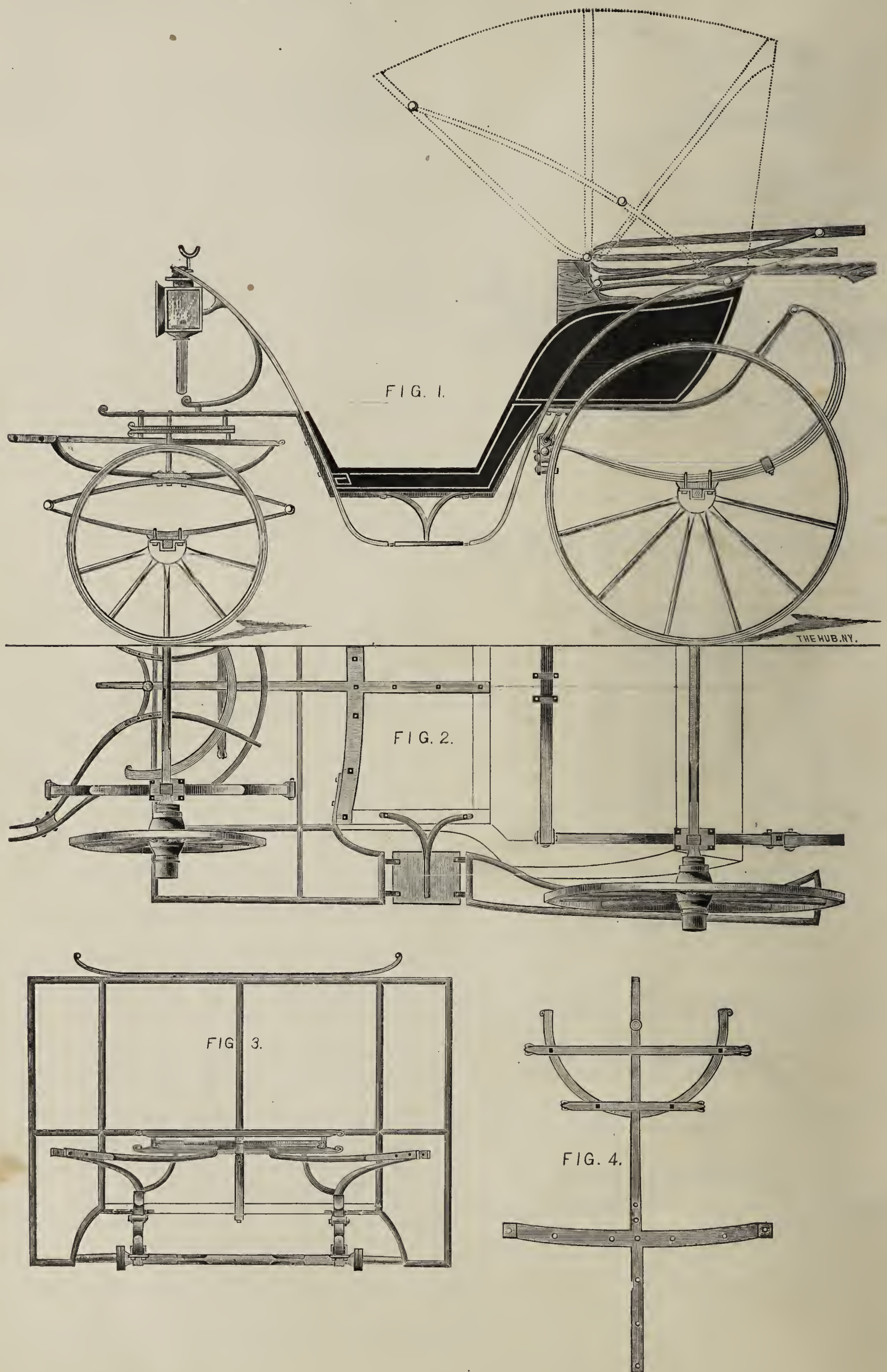
Carriage-part makers can afford to make their work look lank and lean before it is ironed, for the iron will fill out what looks deficient when it is first constructed.

(To be continued.)

AN ATTEMPT TO MAKE HONEST CABMEN.

IN Paris they reward cabmen for their honesty. In addition to voted rewards there is honorable mention. This year three and twenty honest cabmen get 1,600 francs between them; and thirty others, whose integrity was remarkable, but not up to the level of monetary recognition, were honorably mentioned. The first prize man received 200 francs. Statistics give very singular details as to this race of cab-driving Parisians. It includes unfrocked priests, ruined bankers, broken-down cooks out of employment, and dishonest notaries out of prison.

* AUTHOR'S NOTE.—The accompanying four engravings of Mr. Gribbon's carriage part are very good with the single exception of the third, giving a front view. That is bad. The sweep on the bottom bed should not drop down in the center, but should rise slightly to the center; the "toad bellies," or bunches, should be avoided; and the size of the body between the fifth-wheel bearing should be of an even depth.—H. G. S.



WORKING DRAFT OF IRONWORK FOR LADIES' PHAETON ON FIVE SPRINGS.—SCALE, THREE-QUARTER INCH.

(See description on opposite page.)

WORKING DRAFT OF IRONWORK FOR LADIES' PHACTON, ON FIVE SPRINGS.

(See illustrations on opposite page.)

THIS working draft of a Ladies' Phacton represents several new features, well worthy of attention, especially in the ironwork. The front gearing, made entirely of iron, necessitates great skill on the part of the blacksmith, but a working draft showing the different positions of the ironwork should greatly facilitate the labors of the smith, and also produce a much better job.

Our drawing is divided into four different sections. Fig. 1 shows the side elevation; Fig. 2, the bottom view of the entire gear; Fig. 3, the front view of the front gear; and Fig. 4, the top view of the top front gear.

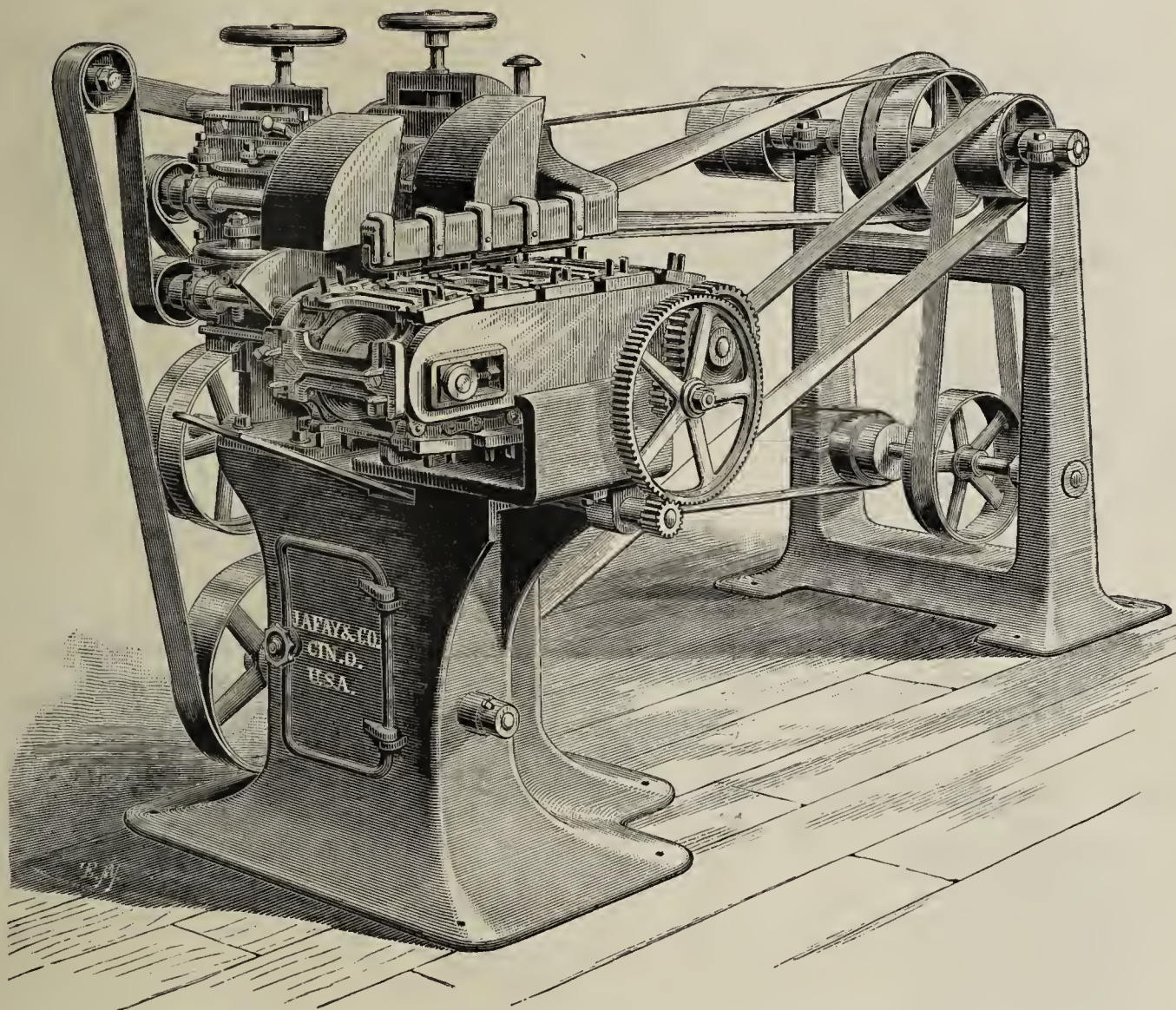
The front gear, as stated above, is made entirely of iron. The spring stays are made of one piece, and follow at the back the circle of the fifth-wheel. The upright stays and top bar are welded solid to the spring stays, thus making the front gear virtually one piece, with the exception of the futchels. The futchels are made of iron, and are bolted under

The front springs are elliptic, 30 in. long, from out to out, with 7 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, two, namely: the first No. 3, and the last No. 2 steel. The C-springs are 36 in. long, from out to out. Width of steel, $1\frac{3}{8}$ in. Number of plates, five, namely: the outside plate No. 2, second No. 3, third No. 4, fourth No. 4, and fifth No. 2 steel. The cross-spring is $36\frac{1}{2}$ in., from center to center, with 5 in. arch over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, five, namely: first No. 2, second No. 3, third No. 4, fourth No. 3, and the last No. 1 steel. Axles, $1\frac{1}{8}$ in., Collinge patent. Track, front, 36 in., and hind, 48 in., from out to out. R. H. L.

AUTOMATIC SPOKE TENONING, THROATING AND MITERING MACHINE.

(See illustration accompanying.)

MESSRS. J. A. FAY & Co., of Cincinnati, O., whose large line of machinery adapted to carriage and wheel-makers' uses is being constantly added to, have recently perfected a new machine that does several things



AUTOMATIC SPOKE TENONING, THROATING AND MITERING MACHINE.

(See description on this page.)

the cross-bar. The kingbolt is placed 3 in. in front of the axle. A plate, forming a T at the ends, is bolted on top of the futchels, and has a socket in the center for the reception of the king-bolt. The proper construction of this part demands good judgment, taste and skill on the part of the blacksmith.

There is but one iron crane-neck, which is welded to the top bar, in the center of the body, and reaches to the back cross-bar in the center of the body. A bar is lapped into the front and back cross-bars in the center of the body, running parallel with the rockers, and is $2\frac{1}{2} \times \frac{3}{4}$ in. in size; and the crane-iron is bolted to this bar. A T-plate is welded to the crane-iron, at the front cross-bar, and bolted to the same. A strong boss is forged to the front end of the crane-iron for the king-bolt. Only one front stay is needed, which is bolted to the dash and crane-iron. The lamp-irons are welded to the inside rail of the front dash. Two C-springs and one cross-spring are used for the hind gear, making not only an easy-riding vehicle, but giving the job a novel and stylish appearance. The joint on top is made with one sweep, the double sweep so long in use having now been generally discarded on this class of vehicles.

Dimensions.—Some of the principal dimensions are as follows: Height of wheels: front, 24 in.; and hind, 36 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $4\frac{1}{2}$ in. diameter. The front bands are $3\frac{1}{4}$ in., and back, $3\frac{3}{4}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

at once, and does them well. We refer to the machine of which we present on this page an illustration.

Its main object is to save time and labor in preparing the spoke for the wheel, and thus to save expense. Previous to the introduction of this machine, the spoke, after being turned, had to be taken to another machine, and pass through the operation of throating upon the sides, thus requiring to be handled twice. After this operation it was necessary also to handle it again to form the tenon upon the end, and still again to form the miters upon the cheeks and head of the spokes. This machine accomplishes all these results, with only one man. It is automatic, and the three operations are completed at a single pass. It is also adapted to tenon, miter and throat the spoke during the one passage, or to either tenon, miter or throat singly, at the pleasure of the operator.

The machine is constructed upon a heavy iron column with broad base, with suitable wings for the support of the tenoning and mitering cutter heads, and the housings or frame of the articulated endless traveling bed. The front of the columns or standards is provided with parallel vertical ways, upon which are fitted the arbor frames, which are adjustable vertically by means of a hand wheel and screw. The throating cutter heads are located in the rear of the tenoning cutter-heads, and project beyond the outer ends thereof, permitting a spoke to be fed by the same endless traveling bed, from the tenoning cutter heads, and to be throated at the proper point. The throating arbors also have a vertical adjustment to suit the different sizes of spokes. A double pressure bar

securely holds the spokes on to the slats of the traveling bed, which are provided with drivers. These bars are made jointed and flexible, so that any inequality of the spoke is provided for. The spokes are fed crosswise in a straight line, through between the cutter heads, the bed lying at a slight slant in order that they may be tenoned so as to secure the proper dish when driven into the wheel hub. After the tenons have been formed, the tenoned end of the spoke passes between guides in which it is held until the throating operation is completed, when the tenoned and throated spokes fall from the bed at the rear end of the machine into a rack.

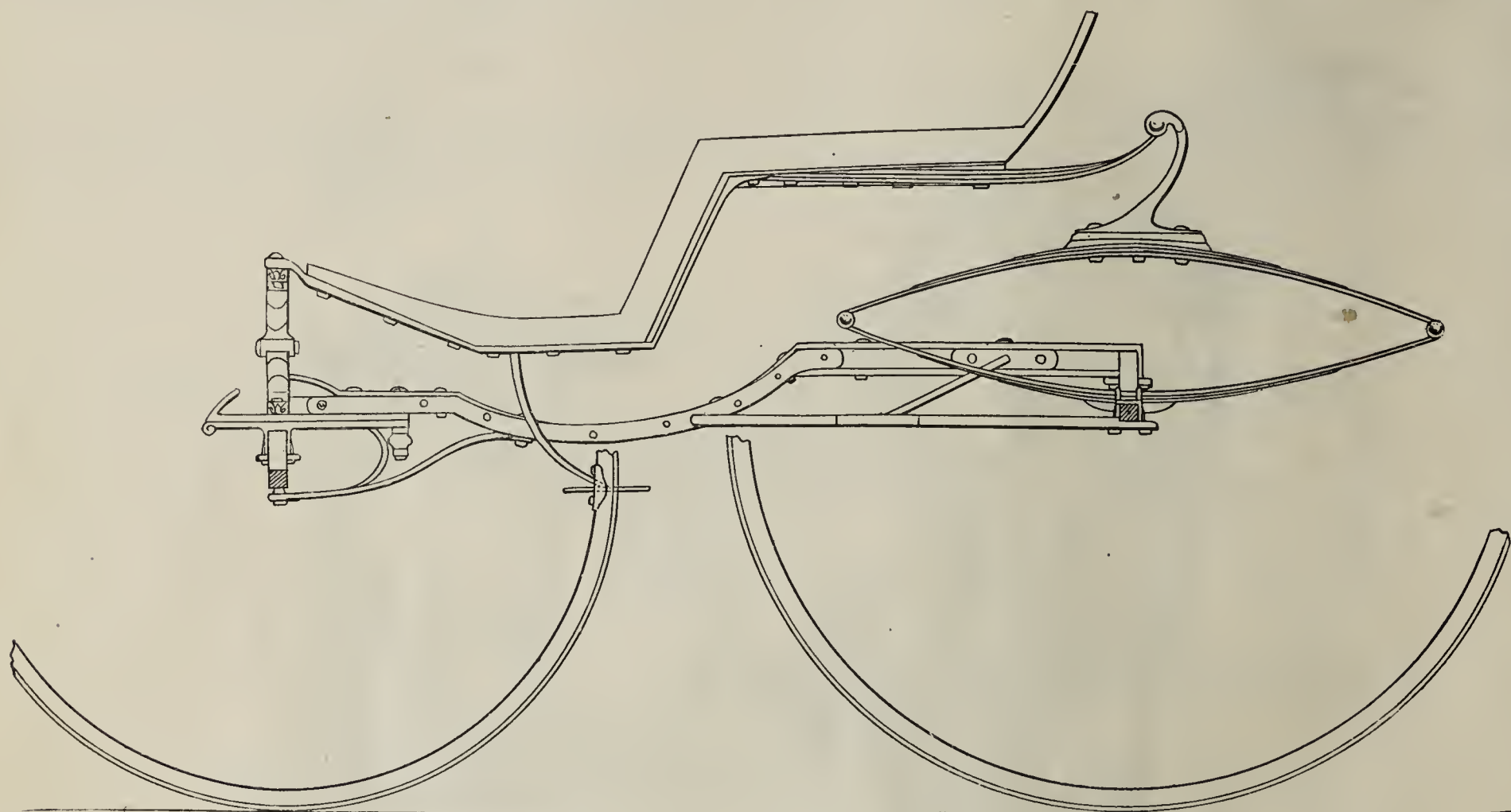
The capacity of this machine is to work spokes from $\frac{1}{16}$ to $2\frac{1}{4}$ inches in diameter; and one man may tenon and throat from 10,000 to 15,000

HOW TO SET A TUYERE.

THE tuyere ought to set far enough from the back of the forge to allow of the easy manipulation of any iron to be heated, and about 18 or 20 inches from the face of the forge. It ought, also, to set from 4 to 5 inches below the surface of the forge.

The connection with the tuyere ought to be an iron pipe, either wrought or cast-iron, as the plain or ordinary sheet-iron connection soon rusts out.

In setting the tuyere, use a mortar made of half fine clay and half good sand, or yellow mold earth. When set, and while the mortar is still green, cover with coal ashes, and pat these into the mortar a little,



FIRST-PRIZE DESIGN FOR IRONING A PHYSICIANS' PHAETON.—FIGURE 1.

(See description on this page.)

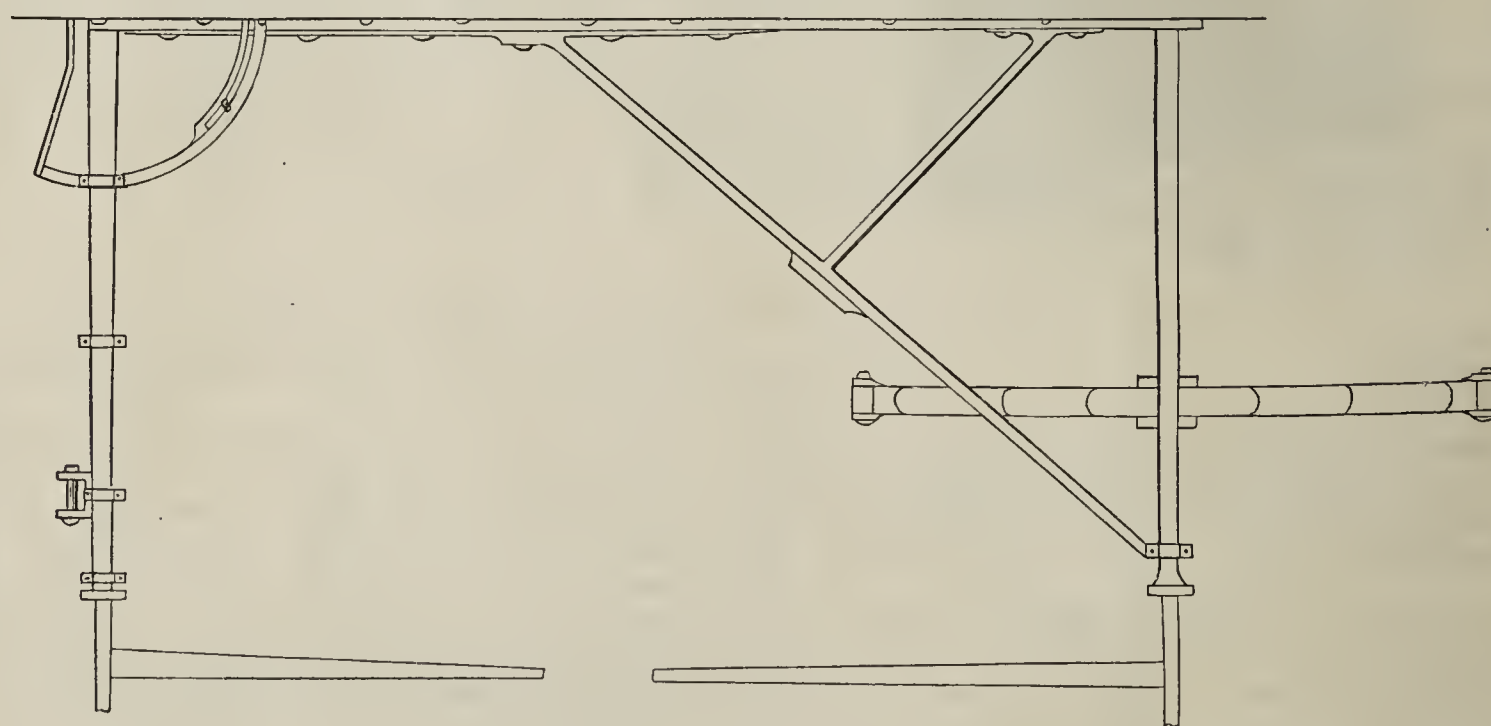


FIG. 2.

per day, depending upon the size of the spoke. Two sizes are made, one to work spokes to $2\frac{1}{4}$ in. diameter, and a larger size to work from $1\frac{1}{2}$ to 4 in. diameter.

HOW TO FILE METAL CORNERS.

If you wish to preserve an iron or steel corner, and keep the metal as full there as anywhere else, you must file from the corner, not toward it, no matter whether on the inside or outside.

AT Keene, N. H., on Thanksgiving Day, a boy of five and his grandfather of seventy-two, had a smoke together. A boy of five ought to be ashamed of himself, setting his grandfather so pernicious an example.

which will prevent the cinders from adhering to the mortar, thereby tearing it off or away from the tuyere.

N. Y. S.

FIRST-PRIZE DESIGN FOR IRONING A PHYSICIANS' PHAETON.

[Drawn by Mr. R. H. Lee, of No. 214 South 5th-street, Philadelphia, Pa.]

(See Illustrations accompanying.)

To the Jury on Award of The Hub's Prizes:

GENTLEMEN: Among the many who use carriages, there are no customers whose needs deserve more care and consideration than physicians, who are out in all kinds of weather, and at all hours of the day and

night; and it should be the study of every carriage-builder who caters to this class of trade to make the vehicles as comfortable as possible, and, at the same time, to make them light, perfectly safe, and durable.

DESCRIPTION OF DESIGN.

The design presented in Figs. 1 and 2 is not new, and while it may not strike you as beautiful, it must, to a mechanic's eye, recommend itself as plain, neat and substantial. I have before me, at the time of writing, a solid gearing of this kind, which has rattled over the cobble-stones of our streets for eleven years past, and the price of the second-hand vehicle to-day is \$225. It is more than second-hand,—it is old; but it remains intact in every part.

I would call your attention to the durability of straight stays over all other shapes. We generally use coach back axles, and make three-spring

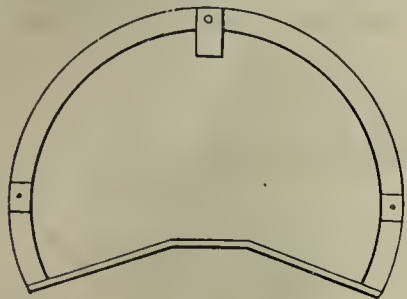


FIG. 3.

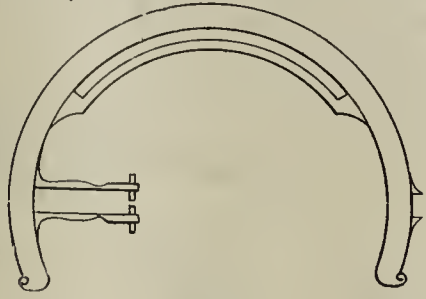


FIG. 4.

jobs. The fifth-wheel plates, Figs. 3 and 4, also deserve attention, as they are very serviceable, one such fifth-wheel, to my knowledge, being now in use which has seen service for the past seven years, of the very hardest kind; and while it is well worn, it does not rattle.

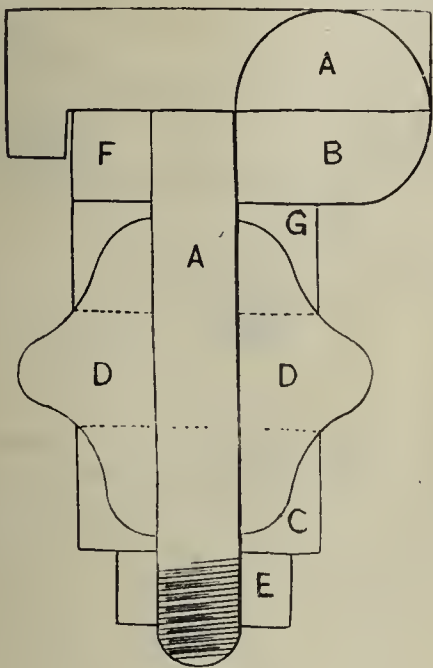
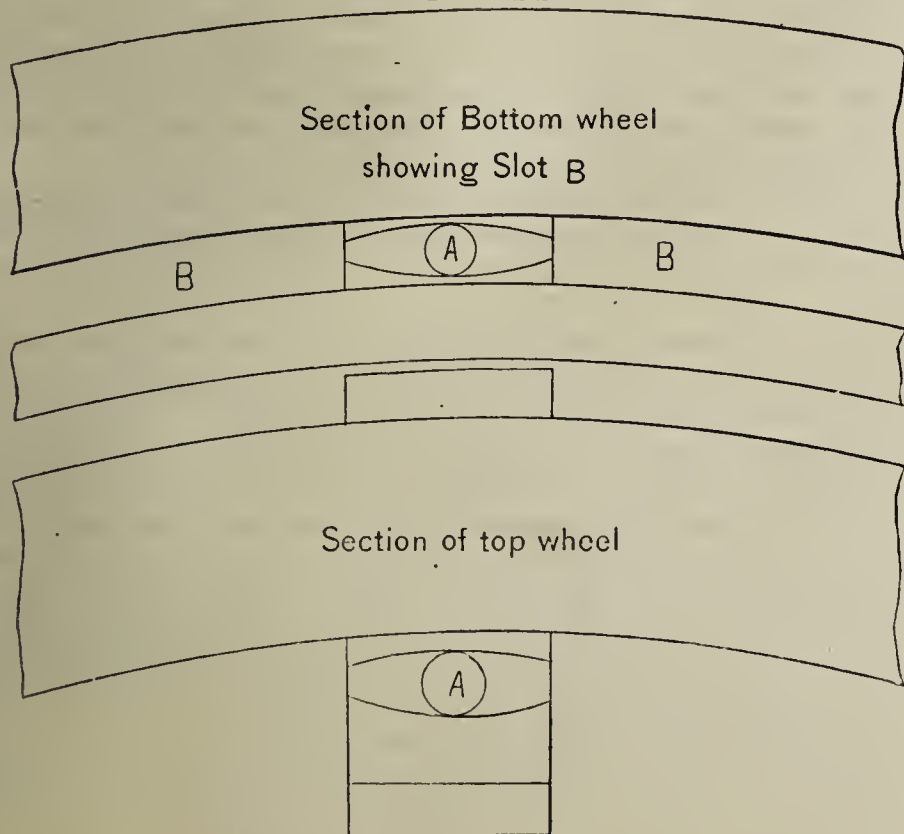


FIG. 5.

Fig. 5 gives a sectional view of the top and bottom fifth-wheels, together with brass cups, C, C; rubber, D; and nut, E. A and B show the top and bottom wheels respectively, F being a section of the slot.

FULL SIZE



FIGS. 6 AND 7.

A, Fig. 5. is the same as bolt A, in Figs. 6 and 7. This fifth-wheel is original with me, and has been in use for fifteen years; and, as an anti-

rattler, I think it has no superior, particularly for a physicians' carriage. It also affords a safeguard against accidents from breakage of king-bolts.

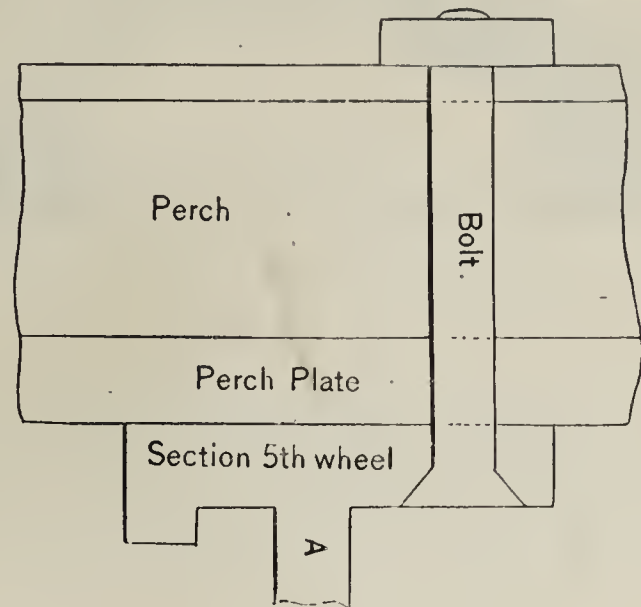


FIG. 8.

Fig. 8 shows the section of the perch, and the mode of attaching the fifth-wheel to it.

(To be continued.)

HOW TO TEMPER SPRINGS.

To temper a spring with oil, first make a box as shown by Fig. 1. Then make another box to set inside of this, as shown by dotted lines, leaving a space all around and on the bottom between the two boxes.

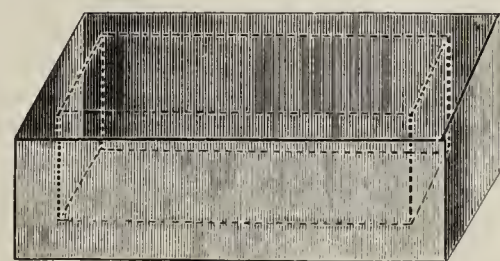


FIG. 1.

Secure the inner box so that it will retain its position. In the inner box place oil, linseed oil being the best. In the outer case place water, for the purpose of keeping the oil cool. Heat the spring-plates, and put them in the oil, and keep them there until cool. Rub with sawdust, to remove the oil. The boxes are best when made of heavy sheet iron. If the oil gets hot, remove the water, and put in cold water.

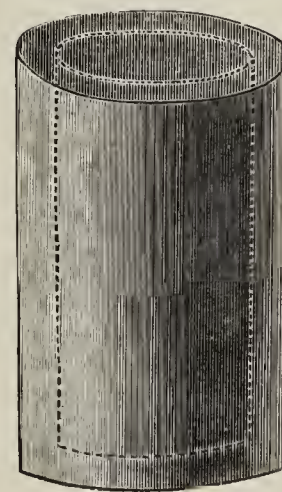


FIG. 2.

Another and cheaper apparatus for tempering springs consists of a large barrel, containing a smaller one, as shown by Fig. 2, with oil in the smaller barrel, and water in the larger one.

HIS REVENGE.

THEY were riding up from the Wall-st. Ferry in a 'bus. He lifted his hat to her in a gingerly manner, and she bowed with the coldness of an iceberg.

"Know her?" asked a man at his elbow.

"Know her! Why, I was engaged to her last fall!"

"And what?"

"And she gave me the bounce. She said she loved me, but she could not endure the thought of a struggle with a French flat and no carriage. I went forth a crushed man, but revenge is mine!"

"How?"

"Why, her father put \$150,000 in a summer hotel, and the company didn't make enough to pay the wages of the head waiter!"—*Wall Street Daily News.*



HOW TO DEEPEN THE SHADE OF VERMILION.

ARDLEIGH, ENG., May 2.

TO THE EDITOR—DEAR SIR: Will the Editor of the Paint-shop Department kindly inform me what is best to mix with vermilion to *darken* it? I use the light color for striping; but occasionally I want to darken it. I want something that will darken and enrich its color, and improve its covering body, *all without glazing*.

Some of our English painters add a little drop-black for this purpose; but I venture to hope that our painter brethren over the water can tell us of something better.

M. W.

ANSWER.—It is entirely wrong to mix black with a light shade of vermilion in order to produce a medium shade, for black is such a positive color that it not only darkens, but deadens and changes the entire tone of the vermilion. There is only one pigment which ought ever to be added to vermilion to deepen it, and that is No. 40 carmine, which will, at the same time, enrich and improve it, and no glazing will be required.

If preferred, our correspondent may take No. 40 carmine and mix with it enough vermilion to lighten it to the shade required. No glazing will then be necessary, and a still richer color than the preceding will be produced.

L.

RECEIPT FOR DEEP ORANGE STRIPING.

ARDLEIGH, ENG., May 2.

TO THE EDITOR—DEAR SIR: Please state in *The Hub* how to make a deep rich orange striping color. An answer as soon as convenient will oblige

Yours truly,

M. W.

ANSWER.—There are, in England, as well as in America, many inferior grades of orange and lemon chrome. Beware of these! In selecting, choose only the best, which will be found the cheapest in the end, by reason of increased richness in color, covering power, and durability.

The receipt for producing a deep, rich, orange striping color is as follows. Take orange chrome, and deepen it with No. 40 carmine, to the desired shade. Mix the best quality of light-colored drying-oil, and use turpentine as a dipper to suit needs.

If a broad stripe, for instance half-inch, is to be applied, it may be found necessary to go over the striping twice. If this is not customary among English painters, we hope our correspondent will try it, for we can assure him that it gives admirable results, that can be produced in no other way. There is no solid color, such as Indian red or vermilion, both of which are good to tint the chrome with, that will produce the same effect.

L.

REPAINTING AND RETOUCHING OLD JOBS.

WEST LIBERTY, Jasper Co., ILL., May 5.

DEAR HUB: Will you please give me your plan of repainting an old job, and also retouching. There are several jobs run out here through the country, of only two years standing, that need repainting. Please give in detail, and by so doing you will greatly oblige

C. F. F.

ANSWER.—(1.) For repainting cracked work, full directions will be found in the March *Hub*, 1884, page 788, under the title "Repainting over Old Cracks," which our correspondent will do well to study.

(2.) For ordinary old work, that has simply lost its luster, or been worn away, proceed as follows: The body and gearing should first be rubbed down with ground pumice-stone and water. Any bare spots where the wood may show through, as on the rims and body moldings, and also any iron parts that are bare, should be primed over with lead; but before thus priming the bare wood parts, be sure to allow sufficient time for the water to dry out of the wood. Carefully look over the job after the priming has thoroughly dried, and putty up any indentations.

Next coat the rims with putty, made of dry white-lead, three parts drying japan and one part rubbing varnish; which will be found to sandpaper smooth. For filling the indentations on the body, the putty should be rubbed off with a smooth piece of lump pumice-stone. After this, the latter should be rubbed around lightly with a rubbing-rag, to remove the marks of the stone. Next touch up all the putty spots on the body, and sandpaper down the rims with No. 1½ sandpaper; dust off, and color the same.

The body and gear are now both ready for color-and-varnish, applied in the usual manner, to be immediately followed by rubbing and finishing varnish.

(3.) If the paint has become impoverished from any cause, as well might happen within two years, in the case of any job subjected to the

influences of ammonia or extreme exposure to the weather, it will then be necessary to color the job all over, instead of using the single coat of color-and-varnish as in the previous case.

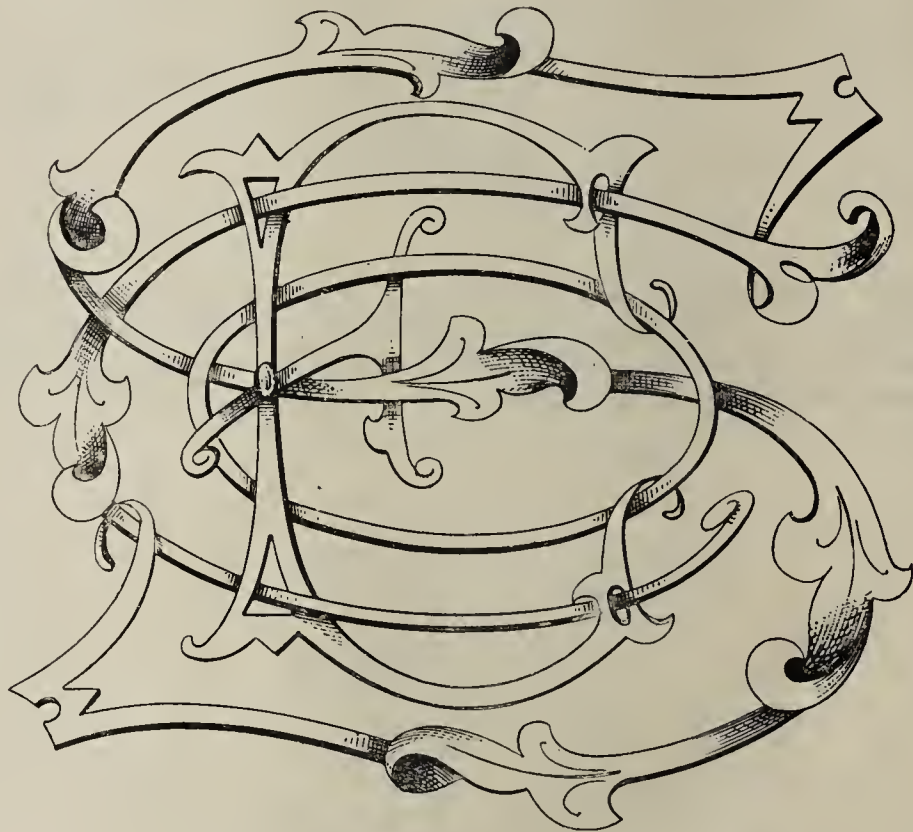
(4.) In the case of jobs merely requiring retouching in certain exposed parts, as on the rims, rub down such parts, and repaint, stripe and varnish as above directed.

L.

MONOGRAM: S. E. CO.

ORANGE, N. J.

TO THE EDITOR—DEAR SIR: For a year past I have been working as foreman painter at Mr. C. P. Ketterer's wagon factory at No. 138 South Fifth-Avenue, New-York; and with this I send you a sketch, reduced to about one third the original size, of a monogram, S. E. Co., which I designed and put on a wagon built to the order of the Southern Express Company.



The coloring of such monograms of course depends somewhat on the ground color on which they are painted, and also on the colors introduced on the running-part. This one was put on panels painted Munich lake; and it was laid in with gold-leaf, shaded with asphaltum, and high-lighted with Naples yellow.

VALENTINE EVANS.

HOW TO VARNISH WOOD IN NATURAL COLOR.

ESSEX, ENG., May 9th.

EDITOR OF THE HUB—DEAR SIR: Will you kindly inform me, through *The Hub*, the best way of varnishing wood in the natural color?

W.

ANSWER.—We presume the desire of our correspondent is to exhibit the grain and natural qualities of some light wood, such as ash or bass-wood, without staining or concealing them. There is no varnish, although made of bleached gums and oils, but that will change the color of such light woods slightly. White dammar varnish is the lightest and most colorless known, but is not at all adapted for a carriage, as it hasn't the necessary durability, and lacks the proper drying qualities.

As an example of the custom of American carriage painters in cases of this kind, we will describe the method commonly in use in New-York City for finishing the body and gearing of a Village Cart in the natural color.

The body is made of carefully selected timber—ash, for instance,—and as light and free from shades as possible. It should come from the woodworker smooth and perfect as regards the surface. There are several prepared wood-fillers in the market, from which the painter takes his choice, and with this he proceeds to fill up the pores and grain of the wood, one coat generally being sufficient. When dry, it is sandpapered lightly, and carefully dusted off, after which it is ready for the first coat of rubbing varnish, which should be as light in color as possible. After this has been rubbed down, a second rubbing coat is generally given; and when this is thoroughly dry, it is rubbed, and the finishing coat follows. Some painters omit the second rubbing coat, and some give three rubbing coats, according to the grade of work.

In the case of a dark colored wood, such as mahogany or black-walnut, the same process is followed, with the single exception that a dark filler is generally used, and it is not necessary to be so careful in the selection of the varnish.

For rosewood, so often used for stable-shutters, the New-York painters proceed precisely the same, but with a reddish filler; and after being

sandpapered off, they give it a coat, all over, of shellac varnish, made of shellac and alcohol, before giving the first coat of rubbing varnish. The reason for this is, that if you apply a coat of coach varnish over rose-wood direct, it will never dry satisfactorily, but will dry in blotches, probably owing to some resinous quality of the sap or fiber of the wood.

L.

PHOTOGRAPH OF THE VARNISH SWINDLER REQUESTED.

INDIANAPOLIS, IND., April 19th.

TO THE EDITOR—DEAR SIR: Allow me to suggest that, if possible, you procure a "photo" of Lazier, the varnish swindler, and print a wood-cut of the same in the next *Hub*, asking those who have been swindled to write you if he is the same man. This will also guard against future efforts, and impress it on unsuspecting carriage men.

IRVIN ROBBINS.

ANSWER.—We have already made every possible endeavor to secure a photograph of Lazier, but without success. The Canadian laws are such that he cannot be compelled to sit for such a portrait; and, although the authorities offered our representative every facility for taking it surreptitiously, and many attempts were made, they all failed. We are still trying to secure it.

HOW MANY COATS TO A BUGGY?

SACRAMENTO, CAL., April 23, 1884.

TO THE EDITOR: Will you please let me know, through *The Hub*, how many coats of rough paint and varnish Brewster & Co. give to a first-class job of buggy painting, and oblige,

Yours respectfully,

A. M.

ANSWER.—Our correspondent is no doubt aware that the firm named employ the American system of painting throughout; and, as adapted by them to buggies, this includes the following coats:

For the body, 1 coat Permanent Wood Filling, 4 coats of Roughstuff, 1 stain coat, 1 coat Permanent Wood Filling (to fill pores in the roughstuff, and prevent sinking of subsequent paint and varnish coats), 2 coats of color, 3 coats of rubbing varnish, and 1 coat of finishing varnish. This makes a "baker's dozen" coats for the body.

For the gear, 1 coat Permanent Wood Filling, 1 glazing coat of putty, 1 coat Permanent Wood Filling, 2 coats of color, 2 coats color-and-varnish, 1 coat clear rubbing varnish, and 1 coat of finishing varnish. This makes a total of 9 coats for the gear.

L.

"THERE'S MILLIONS IN IT!"

CENTERBROOK, CT., May 5, 1884.

EDITOR OF THE HUB—DEAR SIR: I have for years thoroughly perused *The Hub*, and always found many good hints in its pages pertaining to all parts of the carriage business.

I have noticed many questions concerning cracked painting, and how to stop cracks so they would not show again. I have never yet found any one who could inform me how to do this; but I have devised a method of my own, by which I can take the very worst kind of a cracked job and fill it in, and paint and finish, and the cracks will not show again for two years,—providing, of course, that the job is revarnished once a year. I know of several jobs, used close by, that were done this way two years ago (two of these were done three years ago), and not a crack is to be seen yet. These jobs have been revarnished once each year. Now, if you know of any way that cracked jobs can be made to stand still longer than this, I would be glad to pay for the information, for I am satisfied that there is a filling that will stand much longer if it can be found out. This much-desired information I am very willing to pay well for, and I hope to receive something of the kind at your earliest convenience. You will thereby oblige,

One of many,

H. A. BROCKWAY.

ANSWER.—If our correspondent is correct in thinking that he has found a method by which he can regularly fill up and repaint old cracks, without previously rubbing them out, and then have the work wear for two years without their showing through, he has a fortune in the receipt. We never heard of any such method that stood the test of practical use for over a year. In the words of the immortal Sellers: "there's millions in it!" But first be sure that you have caught your hare!

L.

HOW TO KEEP WELL.

BY AN EXPERIENCED NEW-YORK PHYSICIAN.

[An abstract of suggestions verbally communicated to our Editor, by Dr. Edward L. Partridge, of New-York, in response to inquiries addressed to him.]

CHAPTER III. PAINTERS AND VARNISHERS.

THE average carriage painter or varnisher has not the appearance of health; and, in view of the fact that his vocation is one that does not in every respect promote health, it is of great importance that he should abstain from habits which, under the circumstances just mentioned, might be called vices, namely: irregular hours for eating, irregular or late hours for retiring, the use of alcoholic stimulants, and the excessive use of tobacco, or strong tea or coffee, all of which tend to increase nervousness, interfere with healthy circulation, produce dry or sallow skin, lead to digestive troubles, and prevent the workman from reaching the weight which would be properly proportionate to his size.

The reasons for the painter's ill-health—or, to say the least, lack of robust health—would seem to be, first, the sedentary nature of his occu-

pation, carried on, as it is, in a room badly ventilated, and in an atmosphere often charged with poisonous agents. To meet the fact of the sedentary nature of the day's work, it would be better for the painter, even if fatigued, to methodically obtain some out-of-door exercise during the evening and on holidays, rather than to remain shut up in his apartments.

The painter is exposed to certain deleterious effects of white-lead, which is contained in many paints. This is carried into his system by careless handling of these paints with the fingers, and also by the dust raised during the rubbing-down process, the latter being directly conveyed to the lungs. The evil effects of lead poisoning may come on very insidiously, and the system become thoroughly poisoned before there appears the well recognized colic, or paralysis. The condition, up to the appearance of these characteristic symptoms, would be one of general ill-health, loss of appetite, indigestion, constipation, bad complexion, coated tongue, and, when the condition has persisted for any length of time, the characteristic blue line close to the edge of the gums. Later on, from this condition, may develop dyspepsia, hæmorrhoids or piles; and, either after or before the first mentioned symptoms, the workman may have the severe colic so well known, caused by an evil influence upon the intestines of lead present in the system. This lead is introduced into the lungs from the presence of fine particles in the atmosphere, or by the accidental entrance of these particles caught upon the beard, or from carelessly washed hands, which convey the poison into the mouth, more especially during eating.

The painter should in all things be scrupulously neat and clean, and he should wash with a hand and nail-brush, in order to remove every trace of the vicious agent, and especially should he do this before his noon meal, which is frequently eaten in the shop; nor should this meal be eaten in an atmosphere which contains particles of lead. The painter should have an outside garment of some linen material which will not catch or hold the dust to any great extent, and which can be washed from time to time. Preferably, the beard should be worn short.

Lead, as a poisonous ingredient of paints, is usually insoluble in water, and therefore special efforts, as by rubbing, are necessary in removing it from the hands; and furthermore it should be remembered that comparatively small amounts are sufficient to produce grave consequences.

Other details of conduct which would tend to introduce lead into the system, through the mouth or skin, will suggest themselves to the mind of every intelligent workman. Most of the lead poisoning which has been met with in the speaker's experience, was clearly preventable by observance of common-sense precautions, it being true of this occupation, as of almost all others, that familiarity with danger brings contempt for it, with manifest neglect of proper precautions.

In connection with this subject of lead, it would be proper to say that constipation, which is so often present with painters, may be due to the partial impregnation of the system by the poison.

It is important to remember that arsenic is another poisonous agent present in the paint-shop, chiefly in the form of arsenic yellow, Shield's green, etc. The symptoms produced by chronic arsenical poisoning rarely appear in the carriage painter, though, if present, they might be obscure, and be attributed improperly to some other cause.

I am informed that painters frequently warn apprentices against washing their hands in turpentine, on the ground that they are liable thereby to contract paralysis. I know no good reason for such advice, for turpentine is considered a harmless agent for cleansing purposes. The unjust prejudice very likely arises from the evil effects of lead being attributed to turpentine. It cannot be doubted that flattening coats of lead, mixed with a large amount of turpentine, so as to give a dead or non-glistening surface, are the most injurious to the workman. The turpentine readily passing off by evaporation, carries with it a small supply of lead, which is constantly and gradually inhaled; or it is left on the skin to be absorbed; or, entering the mouth and mixing with the saliva, it gets into the stomach.

The varnisher is liable to temporary exhaustion, in the way of being overcome by heat, and close and impure air. I know of no remedy for this condition excepting that the workman should seek air of a better temperature and purer quality as often as possible during the day.

Any obscure symptoms occurring to a painter should be investigated by a competent physician, and the painter should never withhold any information regarding his occupation which might shed light on his case. Furthermore, any painter who is so susceptible as to suffer from a succession of attacks which are evidently due to the baneful influences of lead, should, if possible, change his occupation if he desires to continue in good health.

[To be followed by Chapter IV, on Ailments Common to Trimmers.]

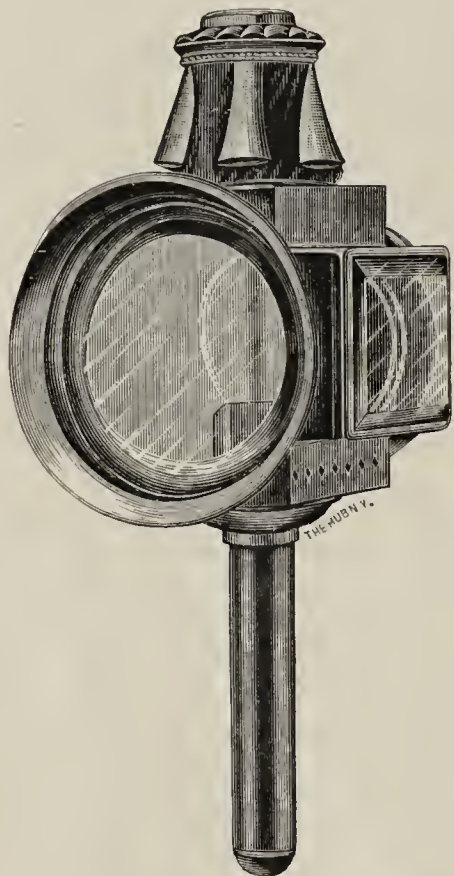
WHEN you see a man in New-York tottering to the sidewalk, with an ashen face and a frightened look in his eyes, you needn't run to his assistance. He will be all right in a minute. He has just got out of a Broadway stage.—*Philadelphia Call*.



NEW HANSOM-CAB LAMP.

THE accompanying sketch shows the new design of lamp developed by the White Mfg. Co., of Bridgeport, Conn., for use on their Hansom Cabs now running in Chicago, Philadelphia, Washington and Boston.

The design is that known as the "Mail Lamp," with a somewhat peculiarly constructed head, and furnishing peculiar advantages for burning



and for ventilation. Either oil or candles can be used. In the East candles are preferred, but in the West gasoline is almost invariably used, being cleaner and less liable to slop over than kerosene, and more reliable as regards going out. Candles are more expensive, costing about 10 or 15 cents a night, a candle $5\frac{1}{4}$ inches lasting about seven hours, while gasoline would not cost as much as that for a week.

MATERIALS AND METHODS APPLICABLE TO CARRIAGE CUSHIONS.

IN FOUR PARTS: PART III.

Another method, more commonly employed, was to substitute a frame of half-inch iron instead of wood. This iron frame was of the required height of the springs, which therefore required to be lashed at the top and bottom by this network of twine, and secured to the frame. This in turn was covered with burlaps, inserted into the cushion, and finished in the manner already mentioned. This principle of construction seems to us very defective, but it partly originated from the inadaptability of the bodies to the spring cushions.

As a carriage body possesses only a limited amount of head room, or height from the seats to the roof, these springs require to be compressed and contracted into a limited space, confined to the amount afforded by the height of the cushion facings, usually from $2\frac{1}{2}$ to 3 in., or less than half the natural height of the springs. This compression necessarily produces a contraction of the spaces between the spiral coils, causing them to chafe and ride, and otherwise impairing their free action, and also proportionately reducing and lessening their elastic qualities. Another defect produced by this excessive contraction is that the upward force of the springs is brought to a sudden stop, and this we believe to be the cause of the frequent complaint of throwing and tossing about the occupants on the seats.

We may perhaps better illustrate this point by supposing that a smith, in ironing a carriage, finds that, by reason of the height of the wheels and springs, the body would hang altogether higher than ordered; and, to remedy this defect, he should attempt to compress and contract the opening of the elliptic springs upon which the body is suspended, by

means of iron bands passing around or through their minor axes. How would such a carriage ride? Would such a job be passed by the builder, or accepted by the customer? We think not.

Now, although springs in a cushion are not as important as those between the carriage body and its gearing, yet the principle is the same. This sudden stoppage of the power of the springs is well marked and readily perceptible in testing one individual spiral spring, and according to the number required in a cushion, it would increase in proportion.

A carriage body possessing some space beneath the level of the seat-board, would perhaps be better adapted for the introduction of cushion springs, as this space beneath the seats could be utilized to insert part of the springs, and excessive compression would not then be required. Such additional space would also afford more play for the spiral coils, and would therefore produce a more extended and consequently easier motion, and a more comfortable seat. Where there is considerable curvature of the seat to present no impediment in the way of utilizing this space, the seat-rail would necessarily be required to present the same curve, and to be brought out even with the front of the intended seat, and a frame could be substituted for the board. This plan, however, might not always be feasible, as bodies are almost invariably constructed without any regard to the trimming, and therefore the trimming must be regulated by their construction. To adapt the requisite materials to the conditions present is always an important point to consider.

We see no reason why sofa springs, which are intended for seats where the amount of head room is unlimited, and which otherwise require excessive compression of their spiral coils, thereby causing them to chafe and ride, should be selected for ordinary carriage cushions, when springs of the desired height and stiffness, and containing a less number of spiral coils, are manufactured expressly for the purpose. As only a certain number of these springs can be advantageously employed in a limited area of surface, it is evident that care should be exercised in their selection, and that they should be well tempered, and of sufficient buoyancy to sustain the weight they are intended to carry.

We may perhaps better illustrate this point by supposing that, in testing the carriage in the smith-shop, by loading it with the number of persons it is designed to carry, the springs upon which the body is suspended were to be found too weak to sustain the weight, and that the elliptics should entirely close and strike the top face of the bottom half of the side-spring. Would these springs be accepted? By no means! This insufficient strength of the springs has been a frequent cause of complaint in cushions, as it allows the burden to bear upon the seat-board, which should be especially avoided.

As we have previously mentioned, there has been frequent lack of a definite statement of objections, and such objections have too often been misconstrued before reaching the workman. For example, it has sometimes been complained that springs were too stiff, when it was afterward conclusively shown that they were on the contrary, entirely too weak, and that the whole cause of the trouble arose from over-stuffing. An unnecessary amount of stuffing, particularly of inferior kinds, had been crowded into the top and around the sides, greatly impairing the power of the springs; and in the tufting, in order to reduce the increased height caused by this over-stuffing, the tufts had been drawn entirely too close, so that no elastic power was present.

IRON-FRAME CUSHIONS.

I believe that cushions containing a single iron frame are particularly defective, not only in their principle, but also by the methods of make-up which they involve, which invariably lead to indifferent execution and construction.

It must be evident that, to preserve the greatest elastic power of the springs they should sink square, and not lean and fall over when weight is brought to bear upon them. This is prevented by lashing and tying the springs, but is very difficult to perform with the aid only of the single iron frame.

Another hindrance presents itself in the iron frame cushions, that they present exceptional difficulties in their final stuffing. The frame being somewhat smaller than the cushion, requires stuffing around the sides, also on the incline from the frame to the springs, and also a little over the entire bottom surface. It is difficult even for the most experienced workman to apply this stuffing, which naturally tends to indifferent execution in the majority of cases. Economy being sought after, hog-hair, or some other inelastic stuffing, is too often crammed indiscriminately around the sides, contributing to further impair the free action and play of the springs.

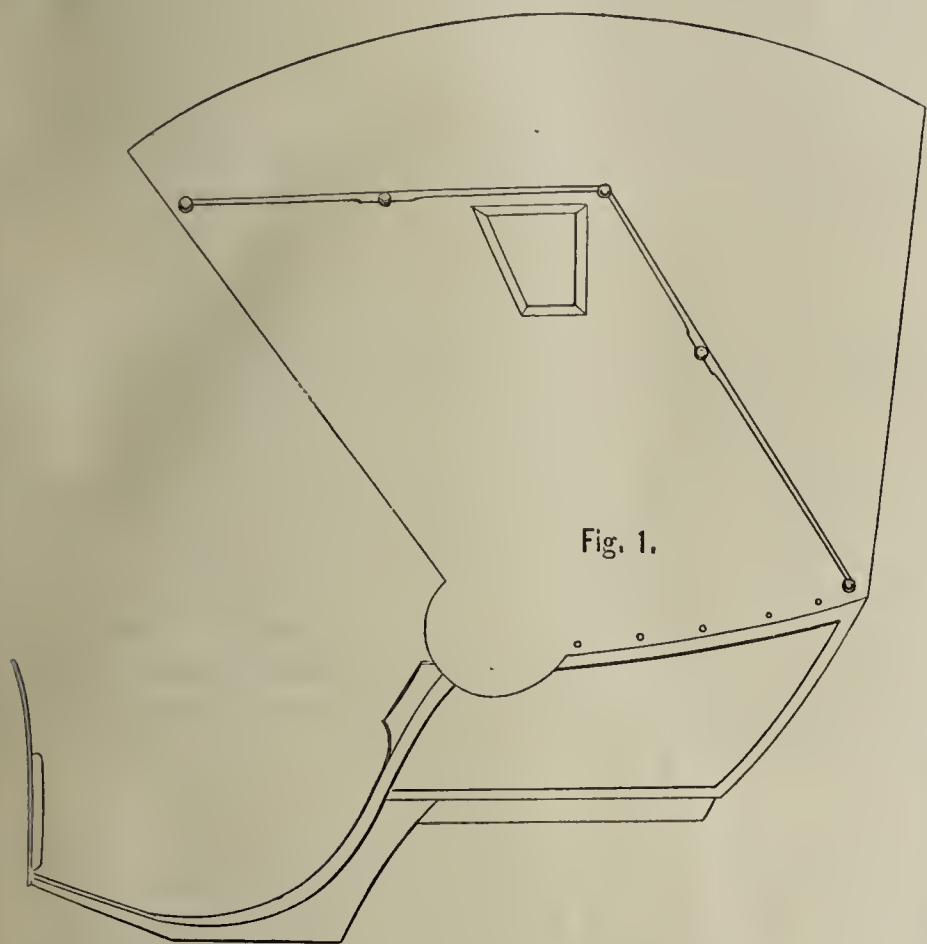
The cushions which we have last described have, as a rule, presented the least attractions of any part of the upholstery in a closed carriage, and we do not hesitate to assert that they can be improved upon, both in their principle and the methods of execution, producing a more comfortable seat and also presenting a more creditable appearance.

(To be continued.)

FIRST-PRIZE ESSAY ON TRIMMING PHYSICIANS' PHAETONS.

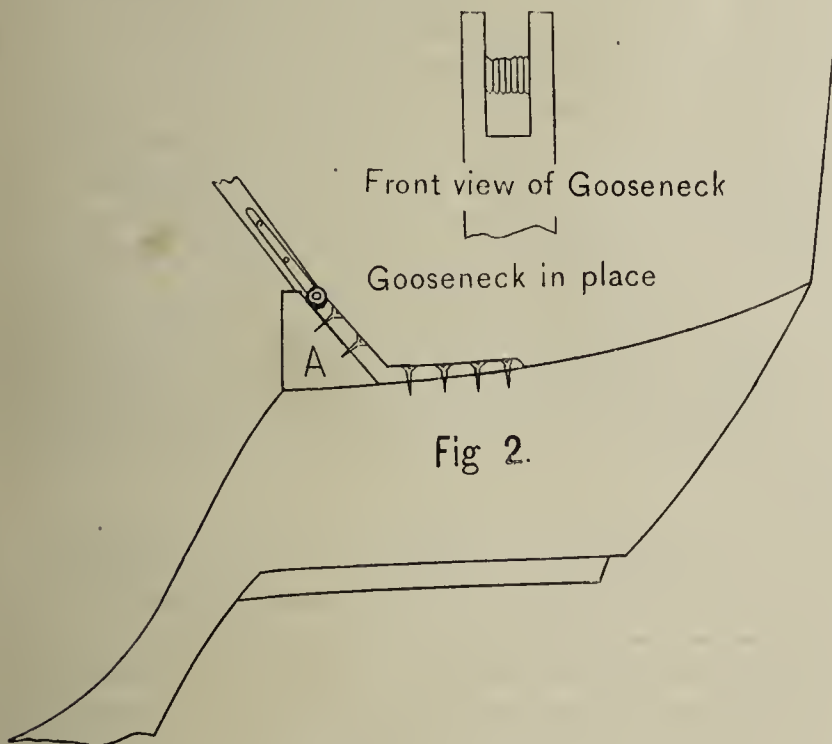
(Name of Writer Unknown: Nom-de-plume, "Brown Paper.")

BELIEVING, with Oscar Wilde, that the first principle of beauty is utility, I have tried, in Fig. 1, not so much to show a beautiful design, considered apart from its use, as to give an idea of trimming that could please by its comfort and wearing qualities, and satisfy the eye by neatness and harmony, rather than display.



A Physicians' Phaeton is used more than any other carriage, and under conditions where it is exposed to all kinds of weather, the occupant at times almost living in it; and it is therefore requisite, first, that the trimming should be of a nature that should stand exposure to sun and water; second, that it should afford the utmost degree of comfort; third, it should allow of ease in cleaning and drying; and the fourth condition is durability, which any reliable manufacturer guarantees.

Leather is acknowledged to be the only lining adapted for exposure; and goatskins, when we consider price, wearing qualities, looks, etc., seem as good as anything for this kind of carriage.

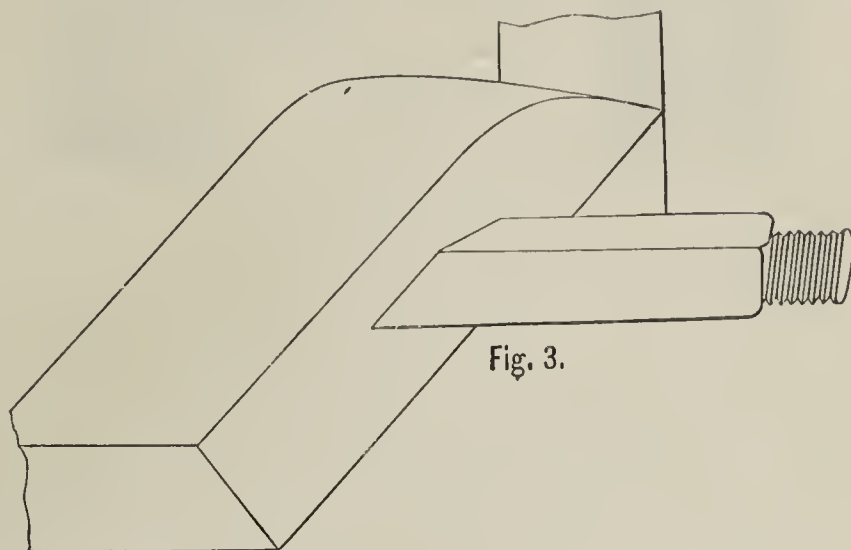


The workman should next determine what he needs for blocking up, and then get it. The goose-neck should be strong, firm in position, and out of the way. Fig. 2 represents a goose-neck in place, fastened to the arm-rail and also to a triangular block on front of arm. It is split on top as illustrated (in a special cut), taking the slat-irons in the slot and fastening them with a bolt; and it should come just level with the top of the block, in order that the bow and block may make a close fit. The height of the block should be regulated by the height of the back, putting it at such a height that it will make a graceful sweep from the top of the block to the corner of the back.

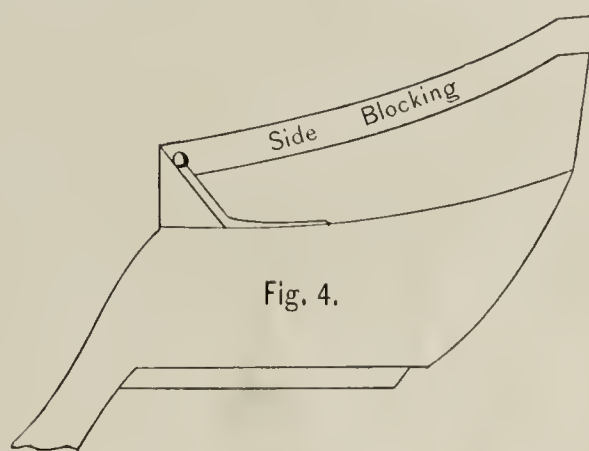
Just here let me say that, for any one riding as much as the average physician, the back should always be at least 24 in. high. This may look

rather heavy at first, but, after a half day's ride in one of that height, the comfort of it will tell its own story and be its own excuse.

Back props should be set firmly, with the outside ends slightly ahead and raised, thereby giving a look of more strength, even if really no



stronger. The back props should be covered with a block, and the prop-block is let in so as to rest the back bow on when the top is down, and also so that the prop-block may have something firm to rest against, as per illustration, Fig. 3.



The side blocking should form a pleasing sweep, but 3 or 4 inches from the back end should run straight, in order to give the side trimming the appearance of the same height in the corner as at the back. Any trimmer trying this will appreciate it, for most of them fail just here, and do not know how to account for it; see Fig. 4.

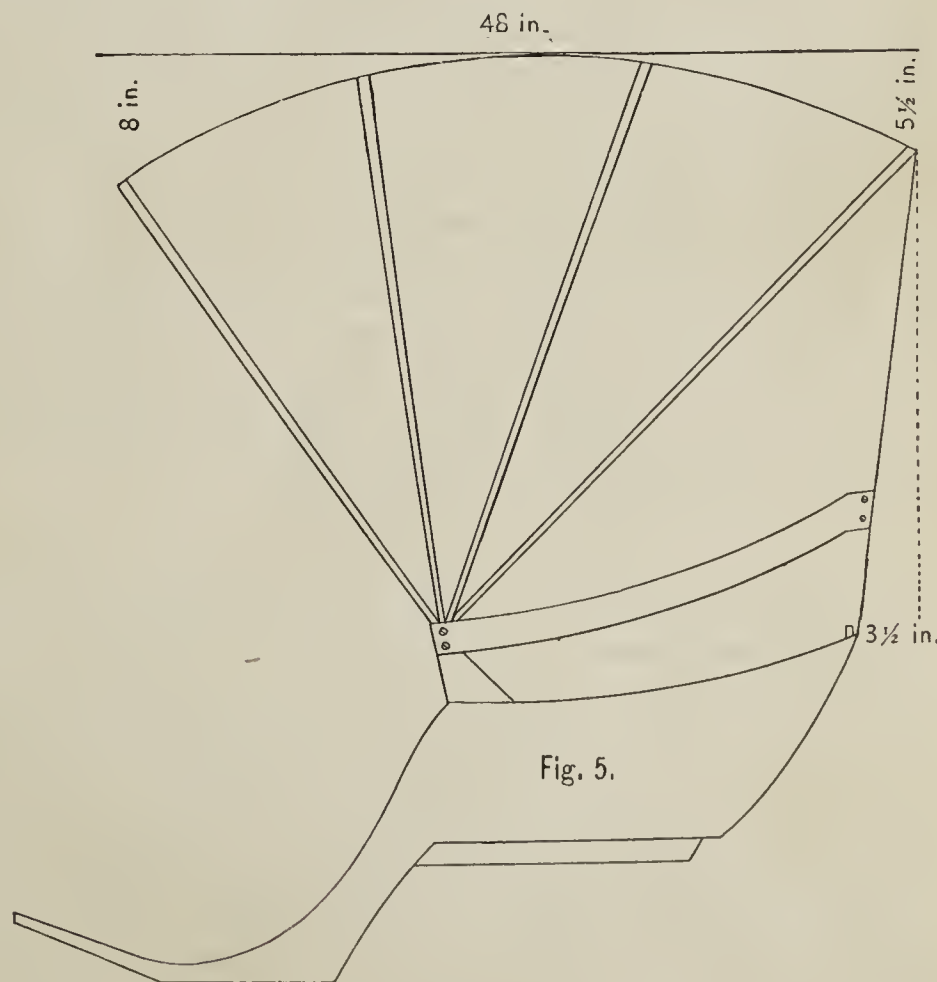


Fig. 5 represents the head in position. What constitutes the perfect head it is impossible to say, as ideas change from year to year even in the same shop, and always vary in different shops. The head must be governed in all its points by the prevailing fashion in the particular place where the carriage is built. For this reason I have avoided extremes, and give one that will look well at any time and anywhere. Its height is 45 in.; length, 48 in.; pitch, 2 1/2 in. from back to front; and rake back, 3 1/2 in. The seam mark is to come 38 in., or 19 in. on each side of the center, for a 44-inch bow,—that is, the top piece to be just 6 in. less than the width of the bows, which is always a safe rule.—(To be continued.)



TRADE GOSSIP OF THE PAST MONTH.

OUR statements in the last number of *The Hub*, to the effect that an encouraging revival in the carriage trade was noticeable, have been challenged by some of our readers, and we have since tried to support them by gathering documentary evidence from leading carriage-supply houses throughout the country. We can't say that we have been entirely successful in this attempt, but the results of our investigations, as presented in detail on pages 193 to 196, are at least sufficient to allay any feeling of apprehension.

* * *

THE event of last month, overshadowing all others, was the panic that occurred in Wall-street on Wednesday, May 14th, the incidents of which are familiar to most of our readers, and we refrain from repeating them. Its causes and effects were mainly local and confined to railway securities. The accompanying stringency in money, which led to extraordinary interest charges of four per cent. per day on good securities, and three per cent. per day even with Government bonds as collateral, was temporary; and this resulted afterward in inviting from Canada, England and the Western States large quantities of funds seeking investment at favorable terms, which speedily removed the difficulty. We perceive no immediate effect of the panic upon the carriage trade; and, if there be any subsequent effect, we anticipate that it will prove beneficial rather than otherwise.

* * *

MAY 1ST marked the close of the fourth annual season of the Trade School for Carriage Draftsmen and Mechanics, carried on under the auspices of the Carriage Builders' National Association and also the first trial season of the Chautauqua or Corresponding Class, inaugurated at the last convention of the same Association, for the purpose of widening the scope of the Trade School, and extending its advantages to employes of carriage-builders throughout the United States, whether young or old, poor or well-to-do, and whether employed by members of the Association or not. The report of Prof. Gribbon, which appears elsewhere in this number, shows no growth in the number of pupils as compared with last year, and the average of attendance is not as high as was hoped for; but the majority of the pupils, many of whom had attended the School during previous seasons, were much more proficient, as the committee expect to illustrate at the St. Louis convention by the exhibition of specimen drawings; and the general results of the school term were satisfactory.

* * *

It is a noteworthy fact that no pupil of the Technical School felt a sufficient degree of confidence in his mastery of the published requirements, to lead him to present himself before the committee on the evening of Monday, April 28th, which had been set apart for the examination of competitors for the Grand Paris Prize, which fell due this year. This was rather a surprise to the committee. A lack of knowledge of the French language seems to have proved the stumbling-block to those who would otherwise have been competitors. It may appear somewhat hard that this alone should debar a competitor possessing all other requirements; but the experience of our Editor, who was formerly a pupil in Mr. Albert Dupont's famous school, clearly demonstrated that no person could be expected to utilize the advantages of instruction under that able teacher of carriage drafting without first having a good general knowledge of conversational French, together with a thorough understanding of the French equivalents for English technical terms applicable both to the carriage trade and to geometry. Competition for the Grand Prize has been deferred until the close of the next season, and it is hoped that many pupils will be led to study French in the meantime. Those who do not succeed in winning the Paris Prize, will

at least win another prize, of more or less value according to how they utilize it—namely, the knowledge of a useful foreign tongue.

* * *

THE Corresponding Class connected with the Technical School, as will appear in the report of the instructor, elsewhere in this number, had a very encouraging first season, and may already be looked upon as an assured success. The list of members includes representatives from twenty-one States; and Massachusetts, Ohio, New-York and Pennsylvania, in the order named, supply the largest quotas of pupils. The first pupil joined the class on Nov. 12, 1883, and the last on May 10, 1884. The total number of lesson and examination papers mailed by the instructor to pupils, from Nov. 1, 1883, to May 1, 1884, was 2,838; and the total number of inquiries from pupils which he received and answered during the same period, was 367. We confidently believe that the good seed thus sown will bear good fruit hereafter.

* * *

THE result of *The Hub's* Prize Offers for working drawings and essays respecting Physicians' Phaetons and Buggies, a full report of which is presented on pages 173 and 174 of this number, seems to have proved very satisfactory to all concerned. We certainly are gratified, and so, no doubt, are the winners of our prizes; while all competitors, whether successful or otherwise, may feel assured that the Jury of Award performed their task with a degree of patience and painstaking beyond the reach of cavil. All the prize working drawings and essays will be published in the current volume of *The Hub*, and will lend to it additional interest in many particulars. One such drawing and three such essays are presented in this number, and well deserve attention.

* * *

THE traveling swindler, it seems, we have always with us. Since the publication of the May *Hub*, our attention has been called to two new cases. One of these is thus reported upon by Messrs. Felton, Rau & Sibley, the well-known paint and varnish manufacturers of Philadelphia, who wrote to us as follows under date of April 29th. They say: "Some time since, Charles W. Sanford applied to us for a situation as traveling salesman. He had first-class written recommendations, and we finally engaged him. He started out on March 26th, taking a sufficient amount of cash with him to cover his expenses for a month or so, and also a line of samples in fine brushes; but we have never received a line or word from him since that time. Moreover, after about two weeks he began making drafts on us, getting parties to advance him small sums of money, and stating to them that he was short, but that he had authority to draw on us. As soon as we discovered that he was an imposter, we had him advertised as such in several of the leading newspapers in the West, and also through the associated press news. No doubt his game is now blocked, as no more bogus drafts have been presented for some time. It seems very strange that people should be so easily gulled into advancing money to traveling men, without having personal knowledge that they are all right." We echo the sentiment last expressed. In fact, we are rapidly losing all sympathy for members of the American carriage trade, who, in view of recent developments in the Lazier case, which have been published broadcast, can longer fail to exercise ordinary business precautions in their dealings with strangers.

* * *

THE second case of an alleged swindler is reported from New-Haven. It seems that, during the last week in April, a rather stout old gentleman registered at the New-Haven House, in that city, signing the name "J. B. Brewster." Now it so happens that Mr. W. H. Atwood, of the Henry Hooker Co., lives at this hotel, and is personally acquainted with Mr. J. B. Brewster, the well-known carriage-builder of New-York. His attention was attracted by the entry in the register, which he says was a close imitation of Mr. Brewster's autograph, and he asked the clerk if Mr. Brewster was in. "Yes," answered the clerk; and, he added, pointing to the stout old gentleman: "There he stands by the door!" The person thus indicated was a stranger to Mr. Atwood, and subsequent developments led Mr. Atwood to infer that he was a fraud, though what his intentions may originally have been did not come to light, as he made a hasty retreat from town. The affair created quite a sensation in the quiet City of Elms, and has since been the subject of much gossip.

RELATIONS BETWEEN AMERICAN CARRIAGE BUILDERS AND THEIR WORKMEN.

BY JOHN W. BRITTON, OF NEW-YORK.

(Continued from page 111 in last number.)

CAUSES OF STRIKES, AND HOW TO AVOID THEM.

Now, I should like to say a few words on the subject of strikes.

My observation proves that strikes originate generally in large shops, and among large bodies of workmen. Why is this? I have looked into the subject, and my answer is this. The man who employs not more than twenty-five or fifty men becomes personally acquainted with them; and, if a man in his employ has a grievance, he comes to the employer directly and states his grievance. In large shops, on the other hand, one man doesn't count; and so the men organize a committee, and the committee come to the office.

I went through the eight-hour strike in 1872. I was treasurer then of the first employers' association I ever joined—and the last and only one. I had an opportunity then of getting a pretty thorough knowledge of the working men, as well as of the bosses; and when Anna Dickinson came to me and said, "I want to talk to you about this strike, and you can talk to me freely, because I am on the side of the employers," I replied: "Well, I am on the side of the men." I saw the utmost selfishness displayed by the employers in that strike; and I saw workmen in it that made the greatest of sacrifices for their fellows. Whether they were right or wrong, I could not but admire their spirit of sacrifice. We employers burnt gas for six weeks, and issued documents by the barrel, and brought leading manufacturers from distant places to meet with us and take counsel. We had employers come to us, who used our gas, our paper and our printed matter, and when we assessed them \$20 apiece, I as treasurer, had to give a man \$3.50 a day to collect the money. Each member of the association was assessed \$20 to pay expenses; and some of them represented millions of money; but I came short on the collections about \$200, which I had to pay out of my own pocket.

I don't believe that employers, taken as a class, are any better than their workmen. I have learned to respect working people, because I have seen so much in them which those who only look at their soiled clothes do not see at all. I come in personal contact with them. I do not hesitate to say to my men, as I did say to them last October, "We have never had but one strike in this shop, and we will never have another. I would rather suffer any loss than have a strike. You may make demands on me that are unjust. If I cannot convince you that you are working in the wrong direction, and are killing the goose that lays the golden eggs, I will yield, rather than have a strike. I won't embitter the shop against the office for the sake of a few thousand dollars."

I have a rule in my shop to the effect that if a man has a grievance, he may come in and tell me of it; and I receive him with the respect due to a man. The moment you take away a man's self-respect, he is hard to deal with. You will succeed very much better if you treat him as a man. In this country all men are equal before the law, and if an employé comes to you with a grievance, he is entitled to a hearing.

Modern arbitration will always fail whenever put to a serious test. The only arbitration that I find of any value is that which is carried on between an entire force and the employer, face to face. If the latter hasn't a good reason for his side of the case, then he had better grant all that is asked for, in the most graceful way at his command.

I have practiced what I preach. I can give you an instance of how I think matters should be managed between employer and employé. Two years ago we were working piece-work in one department, but we were debating about the future, and so failed to give out the work, and some of the men were waiting several weeks for it. We heard that the shop was agitated; they feared that this delay was considered a plan to bring about a reduction of wages. I considered this feeling a misfortune. Some employers under similar circumstances would perhaps say, "That is a good thing; they ought to be frightened once in awhile." But I went right up to my men, and said, "I have heard the rumor that is about, and I feel very much grieved by it. I supposed that the relations between the office and the shop were such that you would know we would not descend to a trick in order to lower wages. When we want to lower wages, we will come to you and tell you the reason why we ask for the reduction. Don't ever believe that we are trying to deceive our men." This appeal proved sufficient.

An employer must always carry out his promises to his men. Even if he is foolish enough to make a threat, he must carry that out. Whatever the situation may be, he must give his men confidence in his honor and integrity, or otherwise he will come to grief. When there is one man on one side of the fence and five hundred on the other, and the one man has all the capital and the others little or none, there is always danger of a misunderstanding; and therefore truth and justice should always govern the conduct of the employer in his dealings with his employés.

I am not afraid to say publicly here that I am not afraid of my men, nor afraid of ever having a strike in my shop. I believe in the justice of the working men, if they are only shown that their employer is not going to take any advantage of them. There are some employers who will go to their men and tell them they will have to take less wages, or go. In such a case the workman says to himself, "Well, I can't afford to be idle; I will have to stand the reduction." We don't do that.

There has been no change in the wages of my men since the spring of 1880-1881. Then trade was prosperous, and we raised wages ten to twelve per cent., without their asking for it. This is the right way to raise wages. I have no doubt that, when trade was afterwards dull, and there was a general disposition throughout the country in our branch of business to stop production, our men were mentally prepared to receive news from the office as to a reduction of wages. But we made no reduction, for I argued in this way: "These men didn't take advantage of us when we were doing well, and when they must have seen that we were making money; they did not take advantage of it, nor take snap judgment on us. They treated us well then, and now it is only fair that we should treat them well." It may perhaps be said that there was a little sentiment in this; but sentiment, I think, has its place, and not an unimportant one, in any scheme for the harmonizing of capital and labor.

As to trades unions, I tell my men I don't object to their joining them. I do not believe in trades unions. I do not believe in giving up to any irresponsible man my right of private judgment. That is the reason why I belong to no association which undertakes to deal with the labor question. I would not join such an employers' association under any conditions. If any employer is fool enough to quarrel with his men, I am not going to help him. Let every tub stand on its own bottom! But as to any employer's or any workman's right in this respect, I say to a man that he can join any trade union, or association, or church, or school that he pleases. That is his business, and his right; though as to the good policy of his submitting his interests to a trades union, that may be another matter.

EXAMPLE OF AN ENGLISH STRIKE.

Some time ago, at Newcastle-on-Tyne, in England, the manufacturing business was prosperous, and the working men were satisfied with their condition. They had no organization, however. The employers had an organization, headed by Sir William Armstrong, the well-known manufacturer of guns. Ten miles distant from Newcastle, there was a competitive point,—the chief industry of both places being ironwork. Finally, the workmen at the second and competing point organized, and asked that nine hours be made a day's labor. Their request was granted. When this news reached Newcastle, the men there said, "We had better organize and ask our employers to do the same." So they appointed a committee, and wrote an address to the Employers' Association, directed to "Sir William Armstrong, Chairman." It was couched in respectful language, calling attention to the fact that in a neighboring city the employers had granted to the men the nine-hour regulation, presenting an argument on the subject, and asking that the Employers' Association would meet a committee of the men. They waited two or three days, and then got a letter from the attorneys of the Association, who wrote that, by the order of Sir William Armstrong, Chairman of the Employers' Association, they begged to say that the Association did not and would not recognize any organization of employés.

The men were astonished, and sent another note, beseeching the Association to at least grant them a hearing; but no answer came to this appeal. Then they struck; and I should have hated every one of them if they hadn't struck!

They were out on that strike for 25 weeks, until all the other interests of the town took the matter in hand, and went to the Employers' Association, and said to them: "You must do something to stop this strike; we are all going to ruin!" After a good deal of delay and perturbation, the employers yielded, and met a committee of the men.

Now, can you imagine any possible event that could have a worse influence than that upon working men? There were a large number of intelligent employers, who were so stupid as to deny the right of their men to organize and do just what they themselves had been doing undisturbed for years. That is the sort of action that will generally be found at the root of strikes.

EXAMPLE OF A NEW-YORK STRIKE.

In the strike that took place in New-York in 1872, an employer in the brown-stone business stood up in a meeting of the employers and told what indignities he had suffered from his men,—and they certainly were great indignities. He and his partner were both practical stone-cutters. They had a contract under way which required to be completed by a certain day, and they could not get skilled labor enough, in their estimation, to complete the contract on time. Consequently, one of the employers took his coat off, and went to work with his own hands. The result was that all the men in the yard stopped work at once. They said it was

taking the bread out of the poor men's mouths. It is of course hard for an employer to stand such folly as that.

Another man, at the same meeting, stood up and said that it was a terrible state of affairs, but that it was the employer's own fault to allow that sort of tyranny to grow up in his place. His argument was to this effect. He remarked, "If a man comes to my office, and says 'I want twenty-five cents more a day,' I tell him 'The first thing you do is to take off your hat,' and he takes it off. The next thing I tell him is, 'Now, you leave! I don't propose to have any man talk to me like that.'" That, to my notion, is the kind of employer who causes strikes.

I can show you some of the best employers in New-York City who have had strikes in their establishments, but it is very often owing to the influence of other employers who have oppressed their men and forced them to combine and resist. The just employers have often had to pay the penalty of the bad influence of other employers.

IMPRACTICABILITY OF NEGOTIATIONS THROUGH COMMITTEES.

One of the practical difficulties which I have met with in my intercourse with workmen is, that the business between the workshop and the office is generally carried on through a committee. That is most unfortunate. Suppose the shop to have an alleged grievance. Then the men hold a meeting; it is all rehearsed and debated; and a committee is appointed to wait on the bosses and protest against it, and ask for a change of program. The committee is naturally selected from among those who believe with the men and most ardently favor their cause. They go down to the office, and the subject is debated there, *pro* and *con*. Now, I do not care how correct and just the position of that employer may be, when the committee returns and reports to the full meeting what has been said and done in the interview with the employer, the committee is pretty likely to garble the account. They are more or less compelled to. If they take up the side of the employer, there is a suspicion that they have been bought, and the question perhaps is asked, "How much did you get?" They have got to distort the argument of the boss, whatever it may be. They do not, as a rule, and they dare not, tell the whole truth. There are few men bold enough to stand up in a shop of five hundred fellow workers, and be under the suspicion of selling out their interest to the boss. It is a position I have never yet seen any man bold enough to stand up to. They are consequently very careful that such a suspicion shall not be aroused. They would rather lie than be supposed to be false to the interests of their fellow men.

When we had our strike of 1872, and I had duly considered its conditions and results, I made up my mind that I would never, under any circumstances, make any reply to my men, through a committee, on any important subject; but that I would present it in person to the men themselves. If it should be a question of general advance of wages, or of shorter hours, or any question of similar supreme importance to both the men and ourselves, I would weigh every word of argument presented by the committee, and I would try to give it fair and impartial consideration; and then I would report direct to the men themselves, so that my position should be thoroughly understood by them, and not be liable to be distorted or colored in any way by the report of the committee. I think this course most just to the committee, to the workmen, and to the employer.—(To be continued.)

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING APRIL, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between April 1st and 29th of the current year :

APRIL 1st, 1884.

Buggy Top	J. C. Oliver	Louisville, Ky.
Carriage Top Prop-block	J. Stanley, ¹	Newark, N. J.
Horse Detacher	D. D. Dautzler	Chester, S. C.
Carriage Shaft-tip	W. S. Atwood, ²	Waterbury, Conn.
Thill Coupling	C. W. Ament	Anthony, Kan.
Tire Tightener	W. Campbell	Detroit, Mich.
Vehicle Spring	C. A. Behlen	Cincinnati, O.
Vehicle Spring Seat	L. Warren	McGrawville, N. Y.
Vehicle Top	E. Warren	Ligonier, Ind.
Wagon Brake	J. Hocking and C. R. Jones	Denton, Neb.
Wagon Brake Lever	T. J. Davies, ³	Newark, Ohio.
Lumber Wagon	Owen Kinsley	Clinton, Iowa.
Vehicle Wheel Washer	B. Masterson, ⁴	Milford, Mass.
Whiffletree	H. Clark	East Canton, Penn.
Whiffletree Hook	J. B. Williams	Glastonbury, Conn.

APRIL 8th, 1884.

Self-oiling Axle for Vehicle	L. H. Fisher	Walpole, Mass.
Axle-skein	L. H. Merriman, ⁵	Auburn, N. Y.
Axle-truss	A. J. Beach	Linden, Mich.
Vehicle Axle	S. T. Cavett	Evansville, Ind.
Jump-seat Carriage	D. E. Gale	Salisbury, Mass.

Carriage Perch Iron	U. H. Hooper, ⁶	New-Haven, Conn.
Vehicle Wheel Hub	B. F. Jacobs	San Francisco, Cal.
Tire Tightener	H. C. Bates, ⁷	Miles, Iowa.
Tongue Support	Daniel Read	New Salem, Kan.
Vehicle Running-gear	W. W. Grier	Hulton, Pa.
Vehicle Spring	R. Mulholland	Dunkirk, N. Y.
"	C. W. Saladee	Torrington, Conn.
Two-wheeled Vehicle	{ L. S. Clark, O. G. Franks and G. F. Baughman, ⁸	Doylestown, O.
Vehicle Wheel	J. E. Bell, ⁹	Nashville, Tenn.
Breeching for Vehicles	D. Hutchinson	Poland, Me.
Hay Wagon Brake	J. A. Putt, ¹⁰	Marlborough, Ohio.
Dumping Wagon	W. C. Bryan	Nashville, Tenn.
Spring Wagon	T. P. Yates	Factoryville, N. Y.

APRIL 15th, 1884.

Self-oiling Axle	E. E. Baker	Olneyville, R. I.
Carriage Body	G. A. Ellis, ¹¹	Gardner, Mass.
Carriage Top Fastener	J. J. Travis	Carson City, Mich.
Vehicle Fifth-wheel	J. W. Leete	South Meriden, Conn.
Thill-coupling	{ G. W. Rossmann and J. E. Strever,	Ancram, N. Y.
"	F. M. Stevens	Waterbury, Conn.
"	H. M. Wheeler	Grand Forks, Dak.
Tire Tightener	S. McCay	Topeka, Kan.
Vehicle Spring	J. Howell, ¹²	Jackson, Mich.
"	G. W. Morris	Pittsburgh, Pa.
Two-wheeled Vehicle	W. T. Goodman	Fulton, Cal.
Dumping Wagon	{ T. W. Boyce and Christian Frische,	Brooklyn, N. Y.
"	L. C. Dees	Lake Charles, La.
Wagon-jack	J. F. Lindsey	Marion, O.

APRIL 22d, 1884.

Axle Yoke	H. K. Porter	Boston, Mass.
Carriage Top	H. McCurry, ¹³	Fulton, Ill.
Material for Covering Carriages	E. W. Harral	Fairfield, Conn.
Cleat for End-gates	J. H. Warren	Burlington Junc., Mo.
Horse Attaching and Detaching Device	C. C. Ferrill	Shubuta, Miss.
Horse Detacher	J. A. Wasson	Wingo, Ky.
Sleigh Knee Brace	O. A. Thayer	Paris, Me.
Thill Coupling	J. C. Dietrich	Galt, Ontario, Can.
"	S. Hubbell, Jr.	Mount Vernon, O.
"	P. D. Peck	Colesburg, Ia.
"	{ L. D. Rundell and P. VanValkenburg, South Westerlo,	N. Y.
Tongue Rest	John Fisher	Riley, Ind.
Vehicle Brake	F. Biery	Mantorville, Minn.
Vehicle Running-gear	R. C. Parvin	Mount Holly, N. J.
Skeleton Speed Vehicle	T. H. Brown	Chicago, Ill.
Two-wheeled Vehicle	L. Donley, ¹⁴	Kalamazoo, Mich.
"	J. D. Robertson	Salisbury, Mass.
"	W. Vandercook	Mason, Mich.
Wagon Body	C. F. Folsome, ¹⁵	Aloka, Ind. Ter.
Wagon Brake	L. G. Peel	Hazlehurst, Miss.

APRIL 29th, 1884.

Axle Skein	W. P. Brown	Zanesville, O.
Truss Brace for Vehicle Axles	A. Jenkins	Wabash, Ind.
Shifting Buggy Top	{ G. Engelhart and C. Weidner,	Attica, O.
Carriage Cover	H. H. Frick	Fricks, Pa.
Cart	J. & S. Mills	Wilmington, Del.
Wagon Fifth-wheel	J. F. Dongine	Chicago, Ill.
Rein-controller	Albin Warth	Stapleton, N. Y.
Rein-fastener	N. N. Hazleton	Lamoine, Iowa.
Tire-upsetter	James Nyer	Deckertown, N. J.
Wagon Tongue Support	J. Bower	Lafayette, Ind.
Vehicle	J. Price	San Leandro, Cal.
Vehicle Running-gear	J. M. Bradley	Tyner City, Ind.
Vehicle Spring	S. E. Oviatt	Lansing, Mich.
Two-wheeled Vehicle	C. S. Harper	Sharon, Mass.
"	E. E. P. Truesdell	Belvidere, Ill.
Wagon Brake	J. K. Hedgcock	Bradford, Tenn.
Whiffletree	J. Whitcomb	San Jose, Cal.

Copies of any of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.

¹ Assignor to Lillian Lemassena.
² " " Plume & Atwood Mfg. Co., same place.
³ " of one-half to Daniel Thomas, same place.
⁴ " to himself and J. W. Eldredge, same place.
⁵ " of one-half to G. F. Prickett, Springfield, Ill.
⁶ " to M. Seward & Son, same place.
⁷ " of one-half to Zachariah De Groat, Preston, Iowa.
⁸ " to themselves & John H. Warren, Lodi, O.
⁹ " to J. W. Cole & R. L. Armistead, same place.
¹⁰ " of one-half to I. S. France, same place.
¹¹ " to H. Heywood, G. Heywood, A. M. Greenwood, and A. Morrill, same place.
¹² " of one-half to H. N. Archer and A. N. Hovey, same place.
¹³ " of one-half to John Stuart, same place.
¹⁴ " of one-half to H. B. Sortor, same place.
¹⁵ " of one-half to J. A. Dillon, same place.



CORRESPONDENCE.

SPECIAL NOTICE.

THOSE divisions of our "Correspondence Department" usually devoted to "Editorial Answers to Correspondents," "Problem Department" and "Critics' Corner," are omitted this month, in order to make room for the following detailed review of the timely topic: "How's Trade?"

HOW'S TRADE?

RESPONSES FROM ONE HUNDRED AND TWENTY-SEVEN CARRIAGE-SUPPLY HOUSES.

Some of our readers are inclined to look upon our views regarding the present condition and future prospects of the American carriage trade, as expressed in our last two issues, as somewhat rose-colored; and more than one correspondent has delicately intimated that they are not altogether justified by the facts of the case. It is true that the testimony is not unanimous, nor do we recall any previous period in the history of the trade when it ever was; but the opinions expressed by us were based upon numerous reports received from reliable sources. The question is one of great interest and some practical importance to the trade at large, and we have therefore been led to investigate it with an unwonted degree of thoroughness, the results of which are collected in the following well-stuffed letter-bag, wherein will be found a large number of detailed reports, received by us during the fortnight closing May 22d, from houses making a specialty of carriage goods and materials of all kinds. These reports, taken collectively, furnish a comprehensive and impartial review of the present situation in the different sections of the country, as viewed from the widely scattered standpoints of the leading supply houses, which obviously possess special opportunities for feeling the pulse of the carriage trade, and correctly estimating its state of health. It is of course true that such supply houses may temporarily enjoy an *active trade*, while those supplied may fail to find a market for the finished products, and thus simultaneously deplore a *dull trade*; but it will be noticed that many of the correspondents whom we quote go much further than to merely note the demand made upon their individual houses; they express views as to business in general and the conditions surrounding it; and these expressions, in most cases, came from manufacturers and merchants of long and varied experience, whose horizon is wide, and whose opinions well deserve an attentive hearing.

For the convenience of such readers as may not care to study and dissect this mass of conflicting testimony, we have first collected the reports under State headings, and then dealt with each report as an individual vote, allowing five classes of such votes, namely: "Fair," flanked on one side by "Bad" and "Very Bad," and on the other by "Good" and "Very Good."

We would further add that we have published every report received by us, from the date of our circular of inquiry, May 8th, down to May 22d, inclusive, and that we have suppressed names and addresses only when so requested by our correspondents, whose reports, it will be noticed, are frequently the more valuable from this circumstance, as the writers are thereby enabled to speak their minds more fully and frankly.

NEW-ENGLAND.

MAINE.

FAIR.—"The volume of our business differs but little from last year, and at present we are full of orders and have a good prospective trade, but at unremunerative prices. Our orders, however, come from different channels, many of them, this season; and by comparing them with those of last year, we conclude that the output of light carriages is, so far, materially less."—WENTWORTH SPRING & AXLE CO., Gardiner, Me.

NEW-HAMPSHIRE.

GOOD.—"Just now the market is full of carriages. Builders are doing well; but jobbers will soon have to look out, on account of so many carriages having been built and in the market."—NEW HAMPSHIRE.

FAIR.—"The demand for carriages in our section is up to last year, though Eastern builders are suffering to some extent on account of so many Western carriages being brought in and sold. The run for Western carriages will be short, however, for they are coarse and poor, and not suited to the Eastern trade."—NEWPORT SPRING CO., Newport, N. H.

VERY GOOD.—"We have been running these works up to full capacity since January, shipping all goods produced as fast as finished, but have not been able to clear off our order-book as yet. We are well satisfied with the amount of the spring trade. In fact, we could not have done more without putting on an extra gang of night workmen. Orders are still coming in, and we have no reason to doubt that there will be a continued demand during the remainder of the year."—CONCORD AXLE CO., Pennacook (Concord), N. H.

MASSACHUSETTS.

GOOD.—"Our carriage trade this year has been about equal to last, though prices of stock have ruled somewhat low. We believe the trade to be in a good, healthy condition."—McCLURE & FIELD, Boston, Mass.

GOOD.—"We cannot say that business with us is rushing, but we have had a good demand for our products since March 1st, and believe the demand will continue for some time to come."—MANUFACTURER, Boston, Mass.

FAIR.—"You ask about business. It is not *bad*, and neither is it as good as it should be in May, but the weather seems mainly to blame. Horses here are selling well. Isburgh & Co. are having \$15,000 sales, and are coining money."—HOWARD SLADE, Boston, Mass.

FAIR.—"Thus far there have been more carriages shipped from here than during the same time in any previous year, but indications point to a falling off in the late spring trade, and manufacturers are inclined to go rather slow after July 1st."—F. A. BABCOCK & CO., Amesbury, Mass.

VERY GOOD.—"We cannot form a definite opinion of the carriage trade, but if orders are any indication, the business must be very good. We have had very much more work during the past four months than ever before. There is an increasing demand for strictly first-class wheels."—A. M. EAMES & CO., So. Framingham, Mass.

FAIR.—"The dullness in general trade seems to us to be the result, first and chiefly, of over-production; second, tariff agitation; third, approaching elections. Present conditions are likely to continue through this year, with little if any improvement next year. All business should be conducted in a very careful and conservative way till there is a decided improvement for the better."—PORTER & WOOSTER, Boston, Mass.

VERY GOOD.—"At present the shipments of carriages from Amesbury are heavy. Many days the shipments amount to 40 and 50 cars, nearly all finished carriages, and a great part packed 30 in a car. The shipments of carriages packed thus are nearly double those of last year, owing somewhat to freight rates by car loads. The weather has been extremely bad, and trade did not start as early as some two or three years ago, but all the manufacturers are busy and some are all sold out in work, while some have exhausted parts of their stock. Everything points to a good business. A great deal of new trade has come to this section this season. Export trade is fairly active. Merrimac is also quite busy, some of the manufacturers' stock being quite low."—ANON, Amesbury, Mass.

RHODE ISLAND.

GOOD.—"I had as good a month during April as I have had in four years, and have as many orders as usual for this month."—JOHN R. READ, Providence, R. I.

FAIR.—"Judging from our orders, we think the American carriage trade is sharing, with other branches of business, the dullness common in presidential election years. The foreign demand for our carriage goods has, however, so increased that our machinery is driven to keep up with orders."—AMERICAN SOLID LEATHER BUTTON CO., CHAS. E. BAILEY, President, Providence, R. I.

CONNECTICUT.

GOOD.—"We think the favorable report in the May *Hub*, by our Mr. Boudren, covers all we have to say in regard to the state of business."—WHITE MANUFACTURING CO., Bridgeport, Conn.

VERY BAD.—"So far as our experience and observation go, business this spring, as compared with last year, is very dull, with but little prospect of immediate improvement."—ANON, Connecticut.

FAIR.—"The volume of business this spring is less than the average for some years past. Our sales, however, aggregate nearly as much as usual, but they come largely from specialties. While we think trade in the near future will be healthy, as to its extent 'no fellow can find out.'"—R. P. COWLES, Pres. C. COWLES & CO., New-Haven, Conn.

FAIR.—"We have sold more goods this season than during the same months of last year. We have not had so many large orders, but more small orders. Prices, however, are low. We do not anticipate a very good fall trade, but our guess is that next spring will bring a good trade and better prices."—H. D. SMITH & CO., Plantsville, Conn.

FAIR.—"In our opinion there was an over-production of carriages last year; and, this year, the production has been at least 25 per cent. less. The demand also is much less. Trade is fairly good now, but the future prospects, as viewed from our standpoint, do not warrant any increase in production. We fear a slow trade later in the season."—ANON, Bridgeport, Conn.

GOOD.—"Business thus far in 1884 with us has been about 22 per cent. better than in the corresponding period of 1883. Prices, however, are hardly as satisfactory as those of last year, but the outlook for trade we consider more cheering, though we discover no special indications of a 'boom' for 1884."—E. E. BRADLEY, Sec'y, NEW-HAVEN WHEEL CO., New-Haven, Conn.

FAIR.—"We have had a very fair trade since last December, and there yet continues to be a very fair demand for goods from many sections. There is complaint of dullness in more localities than at this time last year, but increased demand in other places balances it. The decline in goods for a year past has been very gradual, and, as buyers have been very cautious, no one has suffered much. A little advance in iron would make business very brisk, as stocks in dealers' hands is light. On the whole, the only reason for any dullness in trade may be said to be in people's imaginations. While little money has been made, little has been lost, and the trade is in a healthy condition."—CONNECTICUT MANUFACTURER.

BAD.—"We see no reason to look upon the carriage trade and the prospects as at all differing from that of most other industries. A season of activity and of profitable distribution under favoring circumstances has naturally, and as usual, been succeeded, by one unprofitable, to be followed after awhile again by the former."—ANON, New-Haven, Conn.

FAIR.—"Our trade this season shows a falling off of one-eighth from last season this almost entirely in the West. Our customers are giving no large orders, but the demands are frequent and urgent, showing a short supply in the hands of the dealers. We do not believe there will be much improvement this year. The demoralization in prices leads all buyers to exercise caution, and reduce the size of orders made. This is a safe way of doing business, but it keeps manufacturers in hot water to fill orders as promptly as desired. Prices are down to hard-pan, but while many fully realize the fact, there is no disposition to order more liberally, no thoughts being entertained of a speedy improvement in prices. Our collections are fair, and the outlook, while not promising a remunerative business, does not show signs of prospective losses. We hope for better trade next year."—ANON, Connecticut.

* * *

The 22 votes cast by our New-England correspondents, as above detailed, include 3 "Very Good," 6 "Good," 11 "Fair," 1 "Bad," and 1 "Very Bad." New-England's vote, as a whole, may therefore be averaged as "*somewhat better than Fair*."

MIDDLE STATES.

NEW-YORK.

BAD.—“Trade is not as good as last year, and prospects are not encouraging, as we view it.”—ANON, New-York City.

GOOD.—“Our trade this season, so far, compares favorably with previous years. We look for a normal and conservative business in 1884.”—METAL STAMPING CO., New-York City.

VERY GOOD.—“We are extremely busy, and have been since January 1st, but at very low prices. We have orders on our books sufficient to run until July 1st.”—ANON, Northern New-York.

GOOD.—“Our trade has been on the increase from year to year for the past several years, and the outlook for the same increase this year is fully as favorable as it was last year at this date.”—E. & J. C. COVERT, Farmer Village, N. Y.

FAIR.—“Trade is only fair, and while values are hard at present prices, it is only so because at ‘hard pan.’ We look for a good trade for summer and fall delivery. Trade is no better than last year, and far behind the year before.”—ANON, Buffalo, N. Y.

GOOD.—“Our trade is mostly with the older shops, which are replacing their common slow machinery with the latest improved machines, and we find it better than last year. We anticipate a steady and increasing business.”—ALLEN & SLEEPER, Mt. Morris, N. Y.

FAIR.—“The carriage trade with us this spring is almost, but not quite as good as it was one year ago; and from the present outlook we judge that the trade for the year 1884 will be about the same as it was for the year 1883.”—ANON, Central New-York.

GOOD.—“We think trade active, and more so than could have been reasonably anticipated, judging from the standpoint of three months ago. Wagons and carriages are selling well, we think, and trade is encouraging.”—R. M. BINGHAM & CO., Rome, N. Y.

FAIR.—“Our business is equal in amount of sales to last year, but goods are purchased in smaller quantities, showing that carriage-builders are only supplying their wants. We do not, however, see anything in the future discouraging.”—TEN EICK & KENT, New-York City.

VERY GOOD.—“We see no laxity in the sleigh trade. Our orders for cutter woods have already been placed to the extent of one-half our yearly production, which has not been the case (so early) for five years past. We think this argues well for 1884.”—GAGE, HITCHCOCK & CO., Homer, N. Y.

VERY GOOD.—“Our business is confined to sleighs, and the prospects were never better. Our village will turn out, this season, over 20,000 cutter and sleigh woods (and they are nearly all contracted for now). Whitney's Point turns out more cutter woods than any other place in the United States.”—BIRDSALL & MUCKLE, Whitney's Point, N. Y.

VERY GOOD.—“Our business is better to-day than it was a year ago at this time, and we expect to sell fully 1,000 more finished jobs this season than last. We have more orders booked at present than we have had at any one time since we have been in business, and orders still continue to come in. We consider future prospects good.”—H. A. MOYER, Syracuse, N. Y.

GOOD.—“Our trade has been good so far this year, and although prices are lower, the volume of our trade has been fully up to previous years. We think the carriage trade and manufacturers of carriage goods are not free from the tendency to over-production, and that to some extent we are suffering from it. We look for fair trade to perhaps the middle of June, and then expect it will drop off gradually under the pressure of political excitement, until after election.”—P. D. RANDALL & CO., Troy, N. Y.

FAIR.—“Trade is fairly active, but lacks the life of former seasons. Prices are low, and consumers are only buying from hand to mouth. Our correspondents write us they expect more activity soon. The carriage trade has gone through a long dull season remarkably well.”—CENTRAL NEW-YORK.

BAD.—“We find the trade very different this year from previous seasons. No one seems willing to contract for goods, but they only buy as their wants demand, and all are very cautious. Every one seems impressed that this is an off year. We believe the trade at least from four to six weeks behind previous seasons. We think, however, that trade will be better in the latter part of the season. Crops were poor and prices low with farmers, and they must and will economize until they make up the loss.”—MANUFACTURER, Central New-York.

BAD.—“Business thus far this year does not compare favorably with former seasons, for some years past, either in volume or margin of profit. There are several reasons, in my opinion, why this state of affairs should continue during the year, or (say) until the election of *Tilden*.”—ANON, New-York City.

VERY GOOD.—“Our own trade is on the increase, and double what it was for the same number of months last year. Our force is not what might be called a large one, yet we have been very busy all winter, and have had to work an average of twelve hours a day for the past two months; and we are still behind on our orders. While this is true with us, we have reason to believe, from reports which come to us, that others have not been so fortunate. We have before us a letter from a gentleman who is traveling for one of the most prominent houses in the carriage line in this country, which winds up by saying that ‘trade is very dull everywhere.’”—MULHOLLAND SPRING CO., Dunkirk, N. Y.

VERY GOOD.—“During last fall we accumulated a very large stock of axles, but since then the same have all been sold and shipped, and so far this spring we have been busy—very busy. At the present time we have plenty of orders, and every indication is favorable for having all the work that we can do until mid-summer or later. Still we have the same feeling now that we have had all the season, namely: a fear that trade is liable to drop off suddenly and leave us with but little to do. There is a conservative feeling on the part of buyers, both merchants and manufacturers, and a disposition on the part of all to buy only for immediate wants. Our orders are small and frequent. This we are glad to see, as it proves to us that people are running with sail close to the wind, ready to curtail the moment their sales drop off. The trade so far this year has been a pleasant disappointment to us, and we believe that it is the case with our customers, namely: the carriage manufacturers.”—SHELDON & CO., Axle-makers, Auburn, N. Y.

BAD.—“In common with others engaged in the business of furnishing supplies to this industry, we have found the demands thus far this season very much diminished, —in fact, very light indeed, as compared with the past four or five years; though we believe that, while all classes of manufacturers are suffering from a period of stagnation and depression from various causes, the carriage manufacturers have not been called upon to bear more than their share of the burden. We think the impetus given to the carriage-building industry by the establishment of large manufactories in almost every State of the Union, cannot be maintained for any length of time, unless the outlook for the production be enlarged by a more liberal tariff policy, which would enable us to supply other countries than our own. Carriages are essentially a luxury, which may be dispensed with in times of depression of business and monetary stringency, and therein lies the danger of over-production; and we, therefore, believe it for the best interest of all, to pursue a conservative policy, in the manufacture of cheap work especially.”—ANON, New-York City.

NEW-JERSEY.

BAD.—“Trade is fully a month or six weeks later this year than last, and has started up with very little snap. While we look for an improved trade during May and June, we calculate the season will be short.”—ANON, Rahway, N. J.

GOOD.—“Carriage-makers, as a rule, complain that trade is a little dull, but our trade has been quite brisk since Jan. 1st, '84, and we have sold more goods than ever before in the same length of time.”—SHURTZ & SLACK, Frenchtown, N. J.

GOOD.—“We are receiving orders for the full capacity of our work in our specialties of gear irons, and find an increased demand for the very best grade of our work, but prices are low. We think the prospect good for a late trade without further decline.”—H. M. STRIEBY & CO., Newark, N. J.

VERY GOOD.—“During the months of December and January last, the demand for leather was not as great as in former years, but since the first of February we have

had more orders than we could fill. There seems to be a growing demand for good leather. We can not see why there will not be a fair trade during the spring and summer.”—SAMUEL HALSEY & SON, Newark, N. J.

FAIR.—“In our opinion, we have our market overstocked with goods in the carriage line. The present activity, we think, extends only to the needed annual spring repairs, and the doing up of old vehicles in reference to the future. Part of the year we fear it is going to be very dull. We, however, manage to keep quite busy.”—LAMBERTVILLE SPOKE MFG. CO., Lambertville, N. J.

BAD.—“The present condition of our trade is unsatisfactory. We have just passed from a long period of dull trade into fair activity, with decreased prices, without corresponding saving in labor, and consequently reduced profits. I regard business in our line as having fallen off 20 per cent. from a fair average so far this year; or still more, if measured by the actual value of sales. The causes include increased production for several years past, without corresponding demand, the course of trade with foreign markets, which has turned the balance against us, and decreased earnings by our great transportation lines. One feature remains bright, and probably is the main-stay of the business now. It comes from those whose investments are in real-estate or have fixed incomes, to whom reduced values are an actual benefit, giving them an increased buying capacity. As to the future, we are not at the end of the business depression in our trade yet. There must be a good deal of weeding out of speculative enterprises, and a gradual adaptation to the present business situation. [This prophecy is dated May 10th, or four days previous to the Wall-st. panic.—ED.] When, however, with good crops and final disappearance or absorption of large and weak business and financial organizations, the financial horizon shall be cleared, investments will then increase upon fair returns, and our trade may look for a healthy business. There will be no boom, for our capacity for production is too large to admit of that; but those who properly measure the situation will enjoy their usual prosperity.”—ANSON SEARLS, Newark, N. J.

PENNSYLVANIA.

FAIR.—“We have our full number of hands employed on springs, but cannot say much about the future.”—ANON, Philadelphia, Pa.

FAIR.—“Our experience is that buyers are making small and careful purchases. At the same time, our sales are larger each month than for the corresponding months of last year.”—AXLE-MAKERS, Pennsylvania.

GOOD.—“Trade with us this spring has been very fair,—fully up to the average. The carriage trade is a little backward, but we think the prospects are good. Respectfully yours.”—FELTON, RAU & SIBLEY, Philadelphia, Pa.

VERY GOOD.—“We believe the carriage trade to be in a better condition than ever before, judging from our orders, which are far in excess of last year's business, and from the promptness of collections.”—HOOPES BRO. & DARLINGTON, West Chester, Pa.

FAIR.—“We have been over the country quite a good deal, and also from orders received direct, we can say trade is fair. We don't think it will exceed last year, but see no reason why it may not be up to 1883. The presidential year is always a little off, in our experience.”—RENO BROTHERS, Pulaski, Pa.

VERY GOOD.—“If the manufacture and sale of carriage bolts be any indication, the carriage trade ought to be in a very good condition, for I have made and sold more bolts since January 1st, last, than I have ever done in the same time, in any year; and I still have plenty of orders ahead.”—THOS. SKELLY, Philadelphia, Pa.

FAIR.—“We think the quantity of material moved by us about up to the average, but it will not amount to as much in value, owing to the very low prices of goods in our line. We think the outlook fair for the present season at least.”—ROBERTS & PHILLIPS, Philadelphia, Pa.

FAIR.—“We have received more orders than for the corresponding period of last year, but they are not as large. The reports we have from carriage-builders indicate large stocks on hand, with only a moderate demand for new work.”—EBERLY BROS., Mechanicsburg, Pa.

FAIR.—“We believe the total amount of business transactions this spring will be less than the same period of last year. The old houses with established reputations, may hold their own. The loss will fall among younger concerns. Profits, we believe, are less, yet we do not think manufacturers, as a rule, are going behind.”—DELANY & CO., Philadelphia, Pa.

VERY GOOD.—“My business so far has been very good, although there has been a gradual decline in prices of common stock. I think the coach and coach material business in all its branches is overstocked, and will not be very profitable for years to come.”—JACOB A. LEIPPE, Reading, Pa.

FAIR.—“We, as usual, at this time of the year are busy, but still a great many of our customers complain that trade is dull. In the South where our trade is quite extensive, it is very dull. Respectfully yours.”—ADVENA, DIDINGER & TRANKLE, Philadelphia, Pa.

FAIR.—“We find the trade in haws rather dull. We were fairly busy during April, but trade has fallen off greatly. Our main difficulty is to get good stock to work, and hence we do very little in the way of soliciting orders.”—J. B. VANHOORN & SON, Philadelphia, Pa.

FAIR.—“Our trade is mostly with the jobbers, and so far as our own sales are concerned we have no just grounds to complain, but profits are very close. The outlook, we think, is for a fair trade, but not one where much net profit can be made by any one, but the curtailment will make it more healthy eventually.”—ANON, Philadelphia, Pa.

VERY GOOD.—“We have had a better trade in both springs and gears this year than during any previous year of our history. We have a good healthy trade. Collections have been very satisfactory, and our experience both as to sales and collections extend to all sections of the country. We look for a rather better fall trade than usual, for the reason that our sales appear to be for immediate use.”—DEXTER SPRING CO., Hulton, Pa.

VERY GOOD.—“Our trade is much better at this time than it was a year ago, and the first four months of the present year show a decided increase over the same period last year. From the tone of the letters received from our customers, and from the talks we have had personally with them, we believe a larger and more profitable trade will be done this year than last year. We cannot speak, however, for makers of cheap goods. Prices are maintained, and orders come in freely, and at present we have orders enough to run three months.”—PHILIP LEBZELTER & CO., Spoke-Makers, Lancaster, Pa.

BAD.—“We regret to say that our business this spring has not been up to that of last year; and, from what information we have received from our customers, and from the general outlook, we believe there is little or no prospect of any great change in the near future.”—ANON, Philadelphia, Pa.

VERY GOOD.—“We are selling a great many goods to the carriage trade throughout the country, including glue, curled hair and sandpaper, and we think that this season, so far, compares favorably with previous seasons, while the future prospects are good. With no boom, the carriage trade seems to be purchasing for legitimate wants.”—BAEDER, ADAMSON & CO., Philadelphia, Pa.

GOOD.—“We think the present condition of the carriage trade compares very favorably with other branches of business. Our customers have been buying cautiously, and appear to be feeling their way along during the period of general depression that now prevails throughout the country; but they have met their engagements with reasonable promptness. Should the country be favored with abundant crops, as we have every reason to hope for, we expect the carriage trade to realize some of the beneficial results which must flow from a revival of general business, which all are looking for after the crops are harvested.”—CONRAD B. DAY & CO., Carriage Supplies, Philadelphia, Pa.

VERY GOOD.—“Our trade last winter was very fair, and fully equal to the winter preceding it; and since the roads have become so settled that the people can get about, business has been quite active. Our customers have not been ordering in large lots, as they used to do, and the trade has been drifting in that direction for some time, but their orders in the aggregate amount to about the same. While the people have been talking dull times, and we have been anticipating dull times, we must confess that we have been very agreeably disappointed. We have never had our customers meet their bills with more promptness than they have done this spring, which we think is pretty good evidence that the carriage trade is at least in a healthy condition.”—WHEEL-MAKERS, Pennsylvania.

DELAWARE.

FAIR.—“Our trade is rather indifferent, being at times busy, and then again exceedingly dull. The outlook is not altogether encouraging, but so far this year we have been satisfied, and consider we can count on an ordinary amount of business.”—ANON, Wilmington, Del.

VERY GOOD.—“Trade with me this season is far ahead of any since I started. I am way behind orders, and can not get enough good hands to supply all demands. Prospects seem good for the carriage trade in general. I believe, however, this will be a short season, on account of presidential year. I find good work is more in demand than any other.”—F. T. CLYMER, Wilmington, Del.

* * *

The Middle States cast 46 votes, including 15 “Very Good,” 9 “Good,” 15 “Fair,” 7 “Bad,” and 0 “Very Bad.” In this case, the preponderance is clearly in favor of “Good.”

SOUTHERN STATES.

MARYLAND.

BAD.—“The carriage trade in this section is quite short of previous seasons, and the outlook for the summer is not promising.”—ANON, Baltimore, Md.

FAIR.—“There was a marked falling off in the carriage trade during the first three months of this year, as compared with last; but April and May, so far, are making up for the loss, and we feel confident that there will be fully as much business done during the first six months of this year as last. The outlook is encouraging. Yours.”—E. STINSON & Co, Wheel-makers, Baltimore, Md.

BAD.—“We see nothing very encouraging in the present condition of the custom carriage trade here or in the South. The extension of railroad facilities has been no advantage to the Southern carriage maker, excepting that it enables him to import work cheaper than he can get it up. The wagon trade does not appear to be affected as much by this cause as the carriage trade, and we have noticed a better condition in the former than in the latter.”—C. T. & C. B. MACKENZIE, Baltimore, Md.

VIRGINIA.

VERY GOOD.—“All I have to say about the carriage material trade is, that I think there will be more material sold this year than last. Business is lively at present.”—W. W. BALDWIN, Richmond, Va.

FAIR.—“Judging from our sales of carriage and wagon goods during the past three months, both in Virginia and North Carolina, we are of the opinion that the prospect of the trade is encouraging. From some sections, however, we have heard complaints of bad roads, rainy weather and late season. In this city the trade generally seems to be backward. Some of the manufacturers are very busy on special orders, while others are doing very little.”—A. B. CLARK & SON, Richmond, Va.

NORTH-CAROLINA.

GOOD.—“As to the carriage trade this spring, we can only say that we have found a sale for all the good stock we have been able to cut, and at fair prices.”—STATESVILLE MFG. Co., Statesville, N. C.

LOUISIANA.

VERY BAD.—“Our carriage trade is remarkably dull and no prospect for an improvement, our State being at least two-thirds under water, which will no doubt be the case for some time. Replanting in the overflowed sections is out of the question, and consequently no business of any magnitude in the carriage trade can be reasonably expected.”—JOSEPH SCHWARTZ, New Orleans, La.

MISSISSIPPI.

BAD.—“From local causes, the outlook for the carriage and carriage material trade is not very promising.”—J. C. SCHWARTZ, Natchez, Miss.

TENNESSEE.

FAIR.—“Trade has been only fair during the past season, but we feel encouraged by expressions made by manufacturers we have met within the last four months.”—SHELBYVILLE MFG. Co., Shelbyville, Tenn.

KENTUCKY.

BAD.—“The condition of the carriage trade in this part is unquestionably backward. Sales have been light. The cold wet weather we have had up to date is largely responsible for this, although the general depression of trade, the heavy losses incurred by investors, the exhaustion of purchasing power in the South by bad crops and low prices, —all these have contributed to the general results above mentioned.”—W. B. BELKNAP & Co., Louisville, Ky.

VERY GOOD.—“We are pleased to write you that, while last year at this time we employed 4 hands, we are now employing 31. Our trade has increased very much, and two hours over-time has been the rule since last fall. There appears to be a great deal of complaint among the carriage-builders that the trade is not nearly what it should be, or what it was last year at this time; but our prospects for the future are very flattering indeed, as we have large numbers of good large orders ahead.”—EXCELSIOR HANDLE Co., Augusta, Ky.

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The Southern States cast only 11 votes, including 2 “Very Good,” 1 “Good,” 3 “Fair,” 4 “Bad,” and 1 “Very Bad.” This ballot is not large enough to be particularly significant, but seems to be a straddle between “Fair” and “Bad.”

WESTERN STATES.

OHIO.

FAIR.—“Our trade in carriage-makers’ tools, etc., has been about the same this year as it was last.”—SILVER & DEMING MFG. Co., Salem, O.

VERY BAD.—“In Western Ohio the trade in carriages is stagnant, nothing being done in the way of wholesale manufacturing.”—WESTERN OHIO.

FAIR.—“We have no fault to find with the trade so far this year, and think the prospects fair for the year’s business.”—C. M. CLARK & Co., Cleveland, O.

BAD.—“We can only say that, so far as our own business is concerned, and what we hear from others, the carriage trade so far this year has not been satisfactory.”—ANON, Cleveland, O.

BAD.—“Our trade for the time of the year is dull, and we do not expect the year’s business to amount to over half what it was in ’83. We expect 1885 to be a decided improvement on this year.”—MAKER, Dayton, O.

FAIR.—“We think the business somewhat improved, though nothing to brag over. We find, in order to make sales, it has to be done on very small profits. We think the future looks some brighter.”—CUNNINGHAM & Co., Pistoria, O.

VERY GOOD.—“The trade is later, but fully as good as last year. If present good prospects for crops continue, we look for more than we can attend to. This applies to the entire United States.”—PETERS DASH Co., AND COLUMBUS BUGGY Co., Columbus, O.

VERY BAD.—“Up to the present, we have had about all we could do, but the future prospect looks worse than we have seen it for years, and we think that, six months from now nine-tenths of the carriage manufacturers will say the same.”—OHIO MANUFACTURERS.

VERY GOOD.—“I never had a better trade than the past four months, with good indications for the balance of the season. I think the wholesale carriage trade must be good, as my customers are buying as freely as usual for this time of the year.”—I. N. TORLIFE, Cleveland, O.

FAIR.—“Our trade for spring of 1884 has thus far been quite satisfactory, and while we could do more if we were called upon, we have no reason to complain. Trade generally speaking has been dull in all branches in this section, and particularly so in the iron business.”—ANON, Cleveland, O.

VERY BAD.—“The carriage trade through sections where we find our trade—Ohio, Indiana, Illinois, Michigan, Kentucky and New-York State, has been the duller and most unsatisfactory within the past ten years. Goods have been manufactured beyond the wants of the country.”—WHEEL MAKERS, Ohio.

FAIR.—“Our opinion is that the carriage trade this spring is not up to what it has been in previous years. We have now about the same customers we have had for several years. Previous to this year they crowded us from January to July, but this year we have not been crowded.”—OHIO SPRING MAKERS.

BAD.—“A pretty careful canvass, recently, of the state of feeling among carriage men in this city, forces us to the conclusion that, as a rule, they are not feeling very cheerful either in respect to the present or the immediate future, and we think the same is largely true throughout this State.”—ANON, Cleveland, O.

GOOD.—“Trade opened later this spring than usual, but we are, and have been for some time, running full time and full force. Our customers are getting busy, and quite a number report good business; yet, taking the trade throughout, we think it is not as good as the past several years.”—NEIL, TIPPETT & KILLIAM, Lancaster, O.

BAD.—“Orders are about as numerous as last year, but for smaller quantities, at least 35 per cent. less. Customers are more cautious, and see their way before making purchases. We look for a large trade in June and very light after July 1st. The weather has been and still is against us. West of the Mississippi, trade is specially backward.”—ANON, Cincinnati, O.

FAIR.—“The demand for the finer grades of goods is very fair, but for the cheaper grades it was poor for April; and, so far as we are informed, trade with makers of this class of carriage work is very light as compared with last year at this time, and prospects not good for any improvement in the near future. The trade with jobbers is light.”—CLEVELAND AXLE MFG. Co., Cleveland, O.

VERY BAD.—“So far as our own trade extends, both domestic and foreign, we must admit that it has been exceedingly unsatisfactory for the past twelve or fifteen months, and especially so in our immediate home trade. So far as the present outlook extends, we do not see any marked improvement for the season’s business over last year. Our business has never been as unsatisfactory as at present.”—HUB & SPOKE MFRS., Ohio.

VERY GOOD.—“Our body trade has fallen off about 25 per cent. this season in comparison with the previous three years, but our trade in finished carriages has improved largely, and we are shipping more finished work than ever before to large cities. We don’t think, as a general thing, that small shops are doing as much as last season at this time, but there is a large demand for fine work.”—JAS. DRISCOL & SONS, Springfield, O.

BAD.—“Trade is very quiet with us. We could double our present sales if we would sell at less than cost, but such a course is impossible. Many manufacturers are obliged to realize, and can only do so by offering their goods at ruinous prices. We do not expect much trade during the present year. We look for no marked increase until 1886, by which time the present over-stock in manufacturers’ and dealers’ hands will be exhausted.”—TOLEDO CARRIAGE AND WAGON WORKS Co., Toledo, O.

VERY GOOD.—“If we may judge of the state of trade by our orders, we should conclude that trade was as good as ever. Since January we have had more than we could do. We work 60 hands on bent work, and the greatest complaint is that we do not fill orders more promptly. The stock that had accumulated in the last year or two is being greatly lessened. We think slow times occasionally are a benefit, as they make every one work up old stock. We think the carriage material trade is in better condition now than a year ago; and, take it altogether, we are hopeful.”—J. W. DANN MFG. Co., Carriage Woodwork, Columbus, O.

BAD.—“The carriage trade has been, and is now, duller than usual in the spring, and is still bearing unmistakably the effects of crop failure last year, and particularly the corn crop. A great many of the farmers of Ohio have been buying corn to feed their stock for months, and are not in the humor, and have not the means to buy buggies that are not absolutely necessary; and the same is true of other States. Besides, there are other causes, such as tariff tinkering, over-production, etc., so that on the whole a moderate trade is all that we can expect this year until after the crops are harvested, and then whether it is augmented or diminished depends on what the crops have been.”—OHIO MANUFACTURERS.

FAIR.—“We manufacture bodies, gears, etc., and sell chiefly to retail manufacturers, the majority of our customers being in Ohio, Indiana, Illinois, and adjoining States; and our business there, for the first four months of the year, fell off 33⅓ per cent., as compared with the same period in 1883; but we have increased our business to a certain degree by extending our regular working territory. A few of our customers report their business nearly equal to that of last year, but the greater part inform us of a falling off of nearly 50 per cent. Future trade will, of course, depend largely on the weather and crops. Too much rain has greatly damaged the carriage business in the West during the past two seasons.”—MILLER CARRIAGE Co., Bellefontaine, O.

INDIANA.

FAIR.—“My trade for the four months to May 1st, was 50 per cent. more than to same time last year; but the carriage trade generally is dull in this section.”—L. B. JOHNS, Fort Wayne, Ind.

BAD.—“Our experience, so far this spring, is a falling off of from 20 to 30 per cent., as compared with trade of 1883, and, from present indications, we think prospects for the year 1884 are far short of the trade of 1883.”—ANON, Indianapolis, Ind.

BAD.—“Carriage manufacturers are carrying a large stock, especially the larger class of manufacturers; and, while this is the case, the demand is greatly reduced. This seems to be in consequence of the depression in general business, and a very late spring in this and the territory further West. We expect a greatly reduced business until 1885.”—COOMBS & Co., Fort Wayne, Ind.

FAIR.—“The trade in carriage materials has been depressed and unpromising for the past five months. Sales of new work have been delayed, waiting a settled state of the weather and money to buy with. As we near warm weather, an improvement is noticeable; the manufacturers being able to sell, their hopes revive, and they speak more encouragingly. An unusual feature with both carriage and harness-makers this spring has been the large amount of repair work, thus indicating an economy which is praiseworthy. The future of all business largely depends on the result of the next harvest, which, if abundant, will stimulate all industries. We do not anticipate a rush in business, but look for a fair, steady trade henceforward.”—GEO. K. SHARE & Co., Carriage Supplies, Indianapolis, Ind.

FAIR.—Up to the first of May we made and shipped a few more sets of wheels than we did for the same time in 1883; but, of course, the amount of business figures up less, owing to the decline in prices of whicels. Nor do we accumulate any orders ahead to speak of. Former large buyers now seem to be buying just for actual wants; and it is impossible to make contracts for goods for any length of time ahead, as it has been customary to do in former years. Fortunately, so far this year, orders have come in so that since the last of January we have been enabled to keep running full time. While this lasts, it is more satisfactory to our customers, and a more satisfactory state of affairs to ourselves, to be able to fill our orders promptly. On the other hand, we are fearful all the time that the orders will drop off for a while; if they do, it will leave us, like a good many others, short of work.”—N. G. OLDS & SONS, Fort Wayne, Ind.

MICHIGAN.

FAIR.—“Our trade this season is a trifle larger than 1883, but prices closer, and there is virtually no profit at the present time. As to the future, we do not prophesy.”—KALAMAZOO SPRING & AXLE Co., Kalamazoo, Mich.

BAD.—“We find trade backward, and look for a light trade this season, owing principally to bad crops the past two years, and our customers’ inability to collect. All seems to depend on crops this season.”—ANON, Michigan.

FAIR.—“We certainly think the carriage trade for 1884 will not quite equal 1883, yet much depends on the crops. The writer took quite an extended trip West some time since. I found a very careful feeling existing. Purchases are light but frequent, and if there is a good prospect for crops there will be a good average trade done.”—C. R. & J. C. WILSON, Detroit, Mich.

MICHIGAN—continued.

FAIR.—“We think that the carriage trade is duller than a year ago. We are selling more goods than then, but we have enlarged our capacity and are making harder efforts to sell. We find the poor crops West make business dull, and parties inclined to buy only what is necessary. We are having a fair trade but we have to work hard for it.”—MICHIGAN MANUFACTURERS.

VERY GOOD.—“Our trade in heavy bent stock has been very good during winter and spring, and our orders for cutters for the trade are largely in excess of the corresponding time last year. We have increased our facilities about three-fold, which looks as if we had some faith in the future. Our works are now the largest of the kind in the West.”—DETROIT BENDING CO., Detroit, Mich.

GOOD.—“The carriage trade this spring has been satisfactory, with quite an increase over the corresponding four months of '83. My trade is entirely with the jobbing trade who deal in carriage goods; and, judging from my standpoint, it is good. My trade extends throughout the United States, with considerable export trade. I hear of no complaints from the trade.”—C. W. COE, Fentonville, Mich.

ILLINOIS.

VERY GOOD.—“From our standpoint the carriage trade is excellent. It would seem to be too early to speak of future prospects; a good trade will follow good crops.”—PARKHURST & WILKINSON, Chicago, Ill.

FAIR.—“Our traveling agents report that the carriage trade is very quiet in the smaller towns, but fairly active in the cities. Our sales are in excess of last year up to May 1st.”—DEGOLYER & BRO., Chicago, Ill.

FAIR.—“We think the carriage trade is about the same as all other lines of business, viz.: quiet and unsatisfactory. We refer to the smaller manufacturers. The large manufacturers seem to be doing fairly well.”—K. M. & Co., Chicago, Ill.

FAIR.—“Trade with us is active, but orders are not for large quantities. We judge the carriage trade are buying only for immediate wants, and preparing for a year of only moderate business. Our profits are too small, and others complain of the same thing.”—TUTHILL SPRING CO., Chicago, Ill.

GOOD.—“In a circuit of about 2,000 miles' travel through a portion of five Western States, I find much discussion on future prospects. Trade in general is reported nearly one month behind, ascribed to lateness of the season, heavy rains and cold weather; but there is a general expectation of an average trade,—none for a large trade. Illinois is doing well. There is money enough in the country, but not freely circulated. My own business more than doubled last month, as compared with April, '83.”—L. M. WEST, Rockford, Ill.

FAIR.—“We have found the spring trade in carriage materials reasonably good, but not up to what we expected. The large over-production in the latter part of last year has tended, more than anything else, to keep the trade in this line quiet. We have found that the majority of our customers prefer to work off their stock on hand before purchasing much new material. The future looks brighter, but we can hardly hope for as good a trade in carriage goods this year as we had one or two years ago.”—S. D. KIMBARK, Carriage Supplies, Chicago, Ill.

IOWA.

FAIR.—“At present trade seems to be a little dull in the carriage trade, but prospects are good for the future. In carts we are doing a thriving business.”—PETER LAMP & CO., Davenport, Iowa.

FAIR.—“The carriage trade is increasing here very rapidly, as the country improves, though somewhat checked at present on account of a short corn crop for two years past.”—ADAMS BROS., Manchester, Iowa.

FAIR.—“Trade this spring is not so good as a year ago. Buyers are more cautious in their purchases, ordering in quantities only for immediate wants, in nearly every instance. The future prospects of the trade are encouraging, though not flattering.”—ANON, Iowa.

GOOD.—“From our intercourse with the carriage and wagon-making craft, we are convinced that their trade and prospects are as good as the average season. In view of the short crops prevalent in the West last year, this state of affairs is as surprising as encouraging to them; it is inexplicable to us, except on the hypothesis that good, fair work is produced now, at so moderate a cost as to greatly enlarge the range of customers. The carriage trade appears to us exceptional in its volume. Yours respectfully.”—CYCLONE MFG. CO., Dewitt, Iowa.

WISCONSIN.

FAIR.—“We manufacture wagon stock, and, while trade is not booming, we find it fair, and, are doing our share.”—WEBSTER MFG. CO., Menasha, Wis.

BAD.—“On account of over-production in wagons and carriages during the past two years, combined with the fact that the purchasing power (money) is not in the hands of the consumer, but is concentrated in the banks and capitalists, lower prices have to be accepted to make sales, and sales are slow at that.”—F. MACKINNON & CO., Centralia, Wis.

GOOD.—“Trade with us has been fairly good up to the present time, though on account of loss of crops it could hardly be expected. Our sales thus far do not fall short of last year's, and with good crop prospects we expect to do a good trade in fall sales. The general impression among traveling men in the carriage trade seems to be that trade has been dull during the spring, but that it will pick up after crops begin to show. We are well pleased, however, with results thus far, and hope for a large increase in fall trade over last year.”—ANON, Wisconsin.

NEBRASKA.

FAIR.—“Trade is about the same as previous years.”—HAWLEY & LANGWORTHY, Omaha, Neb.

COLORADO.

FAIR.—“There is some falling off in the demand here. There are exceptions, however. For instance, there are more people willing to pay a good price for first-class work manufactured here, than formerly, whilst middle-grade work is not so much in demand, and the persons who want the cheapest kind of work are supplied mostly by factories from St. Louis, eastward. I might add that trade in general is very quiet.”—T. F. DILLON, Denver, Col.

* * *

The Western States are well represented, casting a total of 48 votes, including 6 “Very Good,” 5 “Good,” 23 “Fair,” 10 “Bad,” and 4 “Very Bad.” In this case the preponderance of opinion is very clearly in favor of “Fair.”

Taking all the above facts together, we therefore find that New-England reports trade to be “Somewhat better than Fair;” the Middle States, as “Good;” the Southern States, as “Somewhat less than Fair;” and the Western States, as “Fair.” When we consider the present condition of trade generally throughout the country, this result seems to us encouraging and a sufficient cause for congratulation.

AMONG the interesting objects exhibited at the recent meeting of inventors in Cincinnati, was the first patent ever issued in the United States. It is dated New-York, July 31, 1790, and is signed by George Washington, President; Edmund Randolph, Attorney-General; and Thomas Jefferson, Secretary.

CORRESPONDING CLASS, TECHNICAL SCHOOL.

CLOSE OF THE FIRST SEASON, 1883-84.

METROPOLITAN MUSEUM OF ART SCHOOLS,
No. 214 East 34th-st., NEW-YORK, May 19, 1884.

To Corresponding Pupils:

The Committee appointed by the Carriage Builders' National Association to superintend the Trade School, take pleasure in commending the pupils of the Corresponding Class for the part they have taken in helping to realize the hopes cherished by the Association, at the time of its inauguration at the last annual Convention.

The Committee feel that the experiment has proved a success. The advantages of practical training in free-hand and mechanical drawing, which the new plan of instruction offers to carriage workmen and apprentices throughout the country, in their homes, and at a merely nominal price that places the opportunity within the reach of all, cannot be over-estimated, and seem to be generally appreciated by the pupils.

The work of the first season, which opened on Dec. 1, last, and closed on May 1, may be briefly epitomized as follows:

The total number of pupils who were members of the Corresponding Class throughout the season, and who satisfactorily responded to the lesson papers and examination papers, was 110.

The lesson papers sent out during the season were devoted to free-hand and mechanical drafting, and were 21 in number, 15 of which called for responses; and there was also one examination paper calling for written replies. All such responses from pupils were carefully examined, criticised and rated by the instructor, Mr. John D. Gribbon; and, out of a possible total of 160 credits, there were 50 pupils who received between 50 and 100, and 17 who received between 100 and 153.

The second season of the Corresponding Class will be opened promptly on October 1, next, under the same management as formerly. Two classes will then be formed, a Primary and an Advanced Class. The Primary Class, including new pupils, together with such former pupils as have not made sufficient progress to warrant promotion, will pursue the same course of study in free-hand and mechanical drafting that was followed during the season just closed. The Advanced Class, consisting of such pupils, new or old, as pass the necessary examination, will be introduced to a new series of lesson papers, which will practically cover the so-called “French rule” of carriage drafting.

In token of the Committee's approval of the commendable progress made by the following pupils, they will be entered as pupils in the Advanced Class during the second season, free of any initiation fee, namely:

F. W. Tucker, Boston, Mass.....	153 credits.
A. Diebold, West Medford, Mass.....	138
H. Eagle, Peru, Ind.....	138
E. T. Galley, Mount Pleasant, Pa.....	138
E. D. Eastman, West Concord, N. H.....	122
H. E. Morrill, Amesbury, Mass.....	122
C. M. Galley, Mount Pleasant, Pa.....	118
Jas. Burns, New-Haven, Conn.....	118
Chas. Swoffield, Elkhart, Ind.....	115
L. Y. Long, Albany, N. Y.....	114
F. E. Quimby, Amesbury, Mass.....	112
Chris. Bruenn, Durand, Wis.....	112
J. F. Montague, Carthage, Mo.....	111
John H. Mount, Red Bank, N. J.....	107
C. S. Hill, North Andover, Mass.....	102
P. A. Warner, Lynn, Mass.....	102
W. J. Sparks, Cincinnati, O.....	100

In concluding, the Committee desire to urge upon all present pupils the importance of continuing, during the coming summer, the practice of free-hand and mechanical drawing, and study of the Kensington Art School geometry, which latter will be supplied to any pupil at cost price, namely, 25 cents, postpaid. Drawings may be forwarded to the instructor, at the usual address, at any time during the summer, and they will be examined at the beginning of the second season, and duly commented upon.

Signed by the Committee of the Carriage Builders' National Association on Technical Education. JOHN W. BRITTON, *Chairman*,
WILDER H. PRAY, W. N. FITZ-GERALD, GEO. W. W. HOUGHTON, *Sec'y*.

“WHAT WOULD YOU DO?”

FREDERICK R. COUDERT, one of the wittiest and most eloquent of our New-York orators, recently illustrated one of his points at a public meeting in Cooper Union, by the following anecdote:

“I was reading but a few days ago,” he said, “that in the great city of Paris they have a sort of civil service reform for hackmen, but they engraft moral principle upon intellectual requirements, and one hackman was asked ‘Suppose you found \$50,000 in bonds in your carriage when you got home, what would you do?’ Well, now, that is a puzzling problem, though I don't think it would puzzle a great many of your best politicians. ‘Do,’ said he, ‘I wouldn't do anything, I'd jest live on the income of my bonds.’”

OPEN BALLOT FOR NEXT PRESIDENT OF THE
C. B. N. A.

FIRST BULLETIN, MAY, 1884.

THE following reprint of an editorial appearing in *Coach, Harness and Saddlery* of May 17th, offers the best possible introduction to this, the first installment of our Presidential ballot, as duly heralded in our last number, page 110. Mr. Fitz-Gerald says:

"Our contemporary *The Hub* has issued circulars, together with small tickets designated 'Informal Ballots,' and forwarded them to the members of the Carriage Builders' National Association, asking them to fill out on the ballots the name of the person whom they prefer as the next President of the Association.

"We regret, exceedingly, this action. In the first place, Mr. McLearn, the present President, is entitled by custom to a reelection, and we do not believe a better selection could be made. In the second place, the movement is giving too much importance to the grumblings of a few persons who could never be satisfied, no matter what was done. We have never heard a complaint from the working members, Active or Honorary. It would be impossible to get together so large a body of men as are enrolled as members of this Association, without including some chronic fault-finders. They, however, serve the purpose to illustrate, by contrast, the different phases of humanity, and cause the majority to feel well-satisfied with their Association.

"Our advice to members is to refuse to vote these ballots, and, when the Convention meets at St. Louis, to cast their votes for the man or men who will best advance the interests of the Association. If the grumblers have anything to offer, let them speak out where all can see and hear them. If they do, the numbers will be found so small as to excite pity from those who sympathize with the weakness of humanity. But, of all things, don't let the friends of the Association be led to a personal canvass for officers by recognizing this ill-timed and injudicious action of *The Hub*."

* * *

We appreciate and sympathize with the general spirit of Mr. Fitz-Gerald's views, as above expressed, the only difference between us, in this matter, being one of method.

The rumor of "grumblings" to which he alludes, is what led us to suggest the propriety of an informal test ballot. Mr. Fitz-Gerald has entire confidence in the present management of the Association, and would let the grumblers grumble to their hearts' content. We have the same confidence in the Association's able management, but our experience is that continued grumbling, however groundless, is sure in time to beget a chorus, and that the best cure is to promptly give the first heralds thereof the floor, and a full opportunity to say their say. In our opinion, the time to apply the "ounce of prevention" is upon the appearance of the very first symptom, if not before; and the time for fire-extinguishers, the period before any flame is perceptible. According to the testimony of the *Carriage Monthly* a whiff of smoke has appeared, which that paper has industriously fanned ever since. We have failed thus far to discover any live embers, but we have smelt the *Carriage Monthly's* smoke. If it is confined to that office, there need be no cause for alarm, and our call for a ballot is a ready means of settling that fact; while if serious, then the sooner we seek and apply a remedy, the better for all concerned. Our columns are open to all who wish to express opinions on this subject; and, in Mr. Fitz-Gerald's own words, "If the grumblers have anything to offer, let them speak out." For several reasons it will be easier and preferable to do this beforehand, and through a trade paper, rather than on the floor at the Convention, partly for the reason that Honorary as well as Active members are at liberty to deposit votes in *The Hub's* ballot box, which will not be the case at St. Louis; and, moreover, the opinions of malcontents can be expressed anonymously through our columns, so long as personalities are avoided, which would hardly be practicable in open convention.

As to the judiciousness of this proposed informal ballot, we trust that our past and present relations with the work of the Association and its officers, and with most of the candidates thus far named, will be a sufficient guarantee of good faith and worthy intent on our part. We shall endeavor to exercise our best judgment in the presentation and use of facts thus confidentially communicated to us; and the number of votes already confided to our care seems to imply that members have some faith in our discretion.

Mr. Fitz-Gerald's reference to the established custom of the Association to retain each President for three years, merits a few words of explanation on our part. It is true that Messrs. Kimball, Britton and Killam, the preceding Presidents of the Association were each twice reelected; but, as a matter of fact, Mr. Kimball

remained in office *four* years, no convention and no election having been held in 1875. The custom, therefore, of a three-years' term can hardly be said to be very firmly established; and, if it should appear that the Western members desire to place in office a representative from their own ranks, we are confident that no one would more cheerfully relinquish his presumptive rights, and support an effort in that direction, than Mr. McLearn, the present President, who has already been once reelected. The Association can hardly hope to ever secure a first officer, Eastern or Western, who shall fulfill his duties more conscientiously or ably than Mr. McLearn has done. The only question is, Do the Western members desire a change of administration in favor of one of their own number? In order to permit them to express their views more frankly, we purposely avoided, in our editorial last month, any allusion to the civility due by custom to the present incumbent; and, going still further, we expressed the hope that the next President would be a Western man. This hope was subject to the condition that such was the general desire of the Western members, and was opposed to our individual choice. As the condition named does not appear to exist, we have now no hesitancy in frankly stating that our own vote was cast in favor of Mr. McLearn, who appears to us to be the right man in the right place, and whose untiring and able discharge of the Presidential duties during two years past, well deserves the token of appreciation suggested by a second reelection.

* * *

Here, then, we present below our first bulletin of the Presidential ballot, as deposited with us during the period from May 12th, to May 27th, inclusive, which needs no further introduction than the statement that the votes have been accompanied by numerous letters, the character of which we further refer to below.

HENRY C. MCLEAR, of Wilmington, Del. (One of the founders of the Association, and its present President, on reelection. Originally nominated by Mr. Lowe Emerson, of Ohio, in 1882, when Mr. Clement Studebaker, of Indiana, declined election).....	19+
LOWE EMERSON, of Cincinnati, O. (Present Vice-President, and member of Committee on Technical Education).....	16
JOHN W. BRITTON, of New-York. (One of the founders of the Association, its third President, twice reelected, and now member of the Executive Committee).....	7
CLEMENT STUDEBAKER, of South Bend, Ind. (Founder, and Chairman of the preliminary meeting in 1872, preceding formal organization; unanimously nominated as Presidential candidate in 1882, but declined election).....	7
WILLIAM D. ROGERS, of Philadelphia, Pa. (Founder, and present Chairman of the Executive Committee).....	6
C. D. FIRESTONE, of Columbus, O. (Present member of Executive Committee).....	6
HENRY TIMKEN, of St. Louis, Mo.....	5
WILDER H. PRAY, of New-York. (Elected Secretary of the Association at its first Convention in 1872, and served continuously until 1882; at present a member of the Executive Committee).....	3
CHAUNCEY THOMAS, of Boston, Mass. (Present member of Committee on Technical Education).....	3
GEO. W. W. HOUGHTON, of New-York. (Not eligible, being an Honorary Member).....	3
CHARLES P. KIMBALL, of Chicago, Ill. (Founder, and first President of the Association, twice re-elected).....	2

SCATTERING.

(Including 1 each for Frank H. Hooker, Rufus M. Stivers, Wm. P. Sargent, Geo. A. Ainslie, Hugh Johnson, J. W. Gosling, Wm. T. Haydock, Henry C. Valentine (not eligible), Geo. M. Peters, Geo. C. Elliott, S. P. Darlington (not eligible), Hugh Duffy, Geo. H. Burrows, and Henry P. Jones (not eligible).....

14

INDECISIVE.

(Including those who express no choice, or request the Editor to cast a vote for them, or who say "Our choice is the Association's choice,".....

31

Total number of votes already cast, as above enumerated..... 122

The votes themselves, as above set forth, give positively no indication of a desire to change the present administration of the Association's affairs. The suggested candidates, almost without exception, are present officers of the Association. Mr. McLearn, the present President, holds the lead numerically, and his rivals are

mainly those who have been closely identified with his administration, including Mr. Lowe Emerson, by whose nomination he was originally elected.

* * *

The correspondence above alluded to, which accompanied these votes, includes fifty or more letters, several of which contain criticisms of our "audacity" in instituting such a "wholly unauthorized ballot," (as one correspondent calls it); but we are happy to add that they include only one unfavorable reference to the Association itself. In that case, the critic is an Honorary member living in New-England, who complains that he "didn't get half enough to eat at the last Convention in New-Haven." Further than this, we have totally failed, thus far, to discover any expression of disapproval as to the present management of the Association, while words of commendation are many and frequent.

Many of the letters contain expressions such as these (we quote): "I am entirely satisfied with the present officers of the society; why make any change?" "Whomsoever the Association may choose, is my choice, without reference to East or West, North or South." "We leave it to *The Hub* editor to cast our vote for us." "I am more than satisfied with all the Association has done in the past, and am willing to abide by its choice." "I have no preference as to section of country." "Please fill in the name to suit yourself, and I will be satisfied, as I have no choice," etc., etc.

Numerous requests like the last-named gave us an opportunity to largely increase the vote for Mr. McLear (our own choice); but we have in all such cases transferred the votes to the class of "Indecisives," as the sole object of this informal ballot is to ascertain the individual opinions of as many members as possible, with the hope that we may thereby lend some assistance toward intelligent and unanimous action at the next election.

The above initial bulletin is of course more suggestive than decisive, but further bulletins will appear from month to month until the time of the next election, and we will be much obliged if all members who have not yet been heard from, or who are now numbered among the "Indecisives," will please overlook Mr. Fitzgerald's admonition, and whisper to us their choice. Later on, in order to throw further light on the source of the votes, we propose to distinguish between the votes of Active and Honorary members, and indicate the section of country from which they have been received.

Have you already voted? No? Well, if you are entitled to, please do so now, and do so with the utmost frankness, that your favorite candidate may have the full benefit of your influence.



GRAY-PARKER'S "DASH THROUGH THE PARK."

WE have received numerous inquiries for reduced reproductions of the spirited engraving by Gray-Parker which formed the subject of our illustrated supplement last month, to be used for circulars and advertising purposes. In response to such requests we have prepared the accompanying photo-engraving, copies of which we are now prepared to mail, post-paid, to any address, on receipt of \$2.50. We expect to see it utilized on many spring circulars.

THERE was a great sale of timber recently on the Duke of Wellington's estate at Strathfieldsaye, England, when about 4,000 oak trees were sold.

PHOTOGRAPHS OF CARRIAGES vs. HAND DRAWINGS.

The May number of our London contemporary published by Mr. Cooper verifies the well-known lines from Butler's "Hudibras," that "he that complies against his will, is of his own opinion still." Mr. Cooper, in his January issue of this year, devoted a leading editorial to proving that photographs of carriages were N. G. In the March *Hub*, page 794, we responded to his statement by assuring him that photographs of carriages were regularly and largely employed by the American carriage trade; and that, under certain conditions (which we duly named), they possessed certain advantages over hand drawings and engravings. Such positive evidence on our part, unless proved to be false, would seem sufficient to terminate the controversy; and it does, so far as we are concerned. Not so, however, with Mr. Cooper, who, in his May number, devotes another three-column editorial to the subject. Mr. Cooper may find the miscellaneous statements contained in this second article entirely convincing to himself; but we confess that we fail to see any relevancy whatsoever in any of them. *Can photography be utilized by the carriage-builder?* That's the subject, and the only subject under discussion. We have offered evidence that photography not only *can be*, but *is* constantly utilized by many American carriage and sleigh-builders, and that's all we have at present to say on the subject. Until Mr. Cooper can disprove our assertion, silent consent would seem only fitting on the part of our irritable contemporary.

TECHNICAL SCHOOL FOR CARRIAGE DRAFTSMEN AND MECHANICS.

FOURTH ANNUAL REPORT BY PROF. GRIBBON.

To the Committee of the Carriage Builders' National Association on Technical Education:

GENTLEMEN: I beg to report as follows, regarding the progress of the Technical School for Carriage Draftsmen and Mechanics, during its fourth season, which opened October 8th, 1883, and closed on the date of this report.

At the beginning of the season there were 33 pupils on the roll, as compared with 28 last year, which number was increased to 39 in January, 1884. The pupils were divided among the different mechanical departments as follows: 27 wood-workers, 9 blacksmiths, 2 painters, and 1 office man; and, as to locality, their residences were distributed as follows: New-York City, 25; Brooklyn, N. Y., 2; Long Island City, N. Y., 3; Westchester, N. Y., 1; Jersey City Heights, N. J., 1; Rahway, N. J., 1; Paterson, N. J., 1; Salt Lake City, Neb., 1; Boston, Mass., 1; Newark, N. J., 1; New-Haven, Conn., 1; and Portland, Me., 1.

Three sessions were held each week, during the period above named, on Monday, Wednesday and Friday evenings, from 7.30 till 10 o'clock. The total number of sessions was 81, and the attendance averaged as follows: For October, 28; November, 29; December, 31; January, 25; February, 23; March, 19; and April, 20.

In view of the stormy winter and long distances which most of the pupils had to travel to reach the school, together with the fact that business was dull, and several pupils were obliged to leave the city in search of employment, I consider this average fair; and I desire to commend the following pupils for specially good attendance, namely: C. J. Harris, Wm. O'Halloran, Wm. J. Doherty, Clement Smith, Chas. Rouchon, Henry C. Schell, Adolph Bachmann, Finally Sinclair, Geo. Nepple, Andrew Johnson, John Burkhardt, Oscar H. Schildbach, John E. Busby, John W. Stilzer, Frank Woychinske, and Geo. J. Stohl.

I desire again to commend Wm. J. Doherty for his good attendance under conditions of special hardship, he being obliged to take the midnight train to reach his home in Westchester Village, N. Y., and I desire also to mention Miles Suart, who came from Rahway, N. J. I have the pleasure to add that my own health permitted me to be present at every session.

For the convenience of pupils desiring to read the trade journals and practice free-hand drawing on the blackboards, the class-room was opened throughout the term at 30 minutes preceding the assembling of the class, and it gives me pleasure to report that this privilege was taken advantage of by many of the pupils.

In response to your request for facts upon which to determine which pupils are entitled to the cash prizes offered by you, I would respectfully offer the following recommendations, namely: For best attendance, I would suggest that you give two first prizes, viz.: to Chas. J. Harris and Wm. O'Halloran, whose record is identical; and a second prize to Wm. J. Doherty. For best free-hand drawing: First prize, Jas. Donovan, and second, Geo. J. Stohl. For best geometrical drawing: First prize, Andrew Johnson; and second, Jas. Donovan. For best inch-scale draw-

ing: First prize, Clement Smith; and second, G. Stohl. For most noteworthy progress: First prize, Frank Woychinske; and second, Jno. E. Busby.

The following trade journals were contributed regularly to the school, for which, on the part of the pupils, I beg to thank their respective editors, namely: *The Hub*; *Carriage Monthly*; *Coach, Harness and Saddlery*; *Coach Painter*; *Coach Builders*, *Harness Makers* and *Saddlers' Art Journal*; *Saddlers*, *Harness Makers* and *Carriage Builders' Gazette*; *Le Guide du Carrossier*; *Le Peintre en Voitures*; *Western Carriage, Wagon and Harness Journal* and *Blacksmith and Wheelwright*. Thanks are also due to Hon. S. S. Cox and Hon. P. Belmont for two volumes of Reports of the United States Board on tests of iron and steel and other metals, Report of Smithsonian Institute, and Report of the Department of Agriculture. I desire also to express my indebtedness to Mr. J. Polya and Mr. John C. Konrad, for the earnest and able manner in which they seconded my efforts throughout the term as my assistants.

I cannot refrain, before concluding my annual report, from again calling attention to the great lack of previous knowledge, on the part of new pupils, in free-hand drawing and primary instruction in geometry; both of which studies, in my judgment, ought to be pursued in the public schools; but in the absence of such previous instruction, the lessons in free-hand and geometrical drawing that are being sent out to the pupils of the Corresponding Class, promise hereafter to prove of great service in preparing those who intend hereafter to join the Technical Class, by enabling pupils to promptly utilize the full benefits of the instructions given in the school, and to go through the prescribed course in a much shorter time than heretofore.

Again thanking the assistant teachers and the pupils for their kind and considerate attention, and your own committee for the generous and hearty manner in which you have seconded my efforts in conducting the instruction, I remain, gentlemen,

Your obedient servant,

JOHN D. GRIBBON,

Instructor.

NEW-YORK, April 30th, 1884.



NEW-YORK CITY.

PERSONAL.—Mr. Lawson Valentine, of New-York, is still in Paris, where he will soon be joined by his family, and he will probably prolong his foreign visit until next spring.

NUMBER WRONG.—The Metal Stamping Co. have removed to 134 and 136 Duane-st., New-York, in place of the same number Chambers-st., as was announced in our May number.

THE CONNOR FIRST-PRIZE WORKING DRAWING, to which were awarded *The Hub's* prize of \$35 in cash and a silver medal, forms a noteworthy feature of this number. See loose sheet accompanying.

WANTED: The name and address of the unknown writer whose illustrated essay on trimming a Physicians' Phaeton, begun in this number, succeeded in carrying off *The Hub's* first prize in that class.

PERSONAL.—Mr. John W. Britton, of New-York, Ex-President of the Carriage Builders' National Association, has just completed a new residence at Saratoga Springs, N. Y., where he will spend the coming summer.

THE "VETS."—At the last meeting of the Brewster & Co. Veteran Association, Mr. Mosier, the President, presented the Association with an engrossed scroll of the members and officers, for which the thanks of the Association were tendered.

THE CARRIAGE PAINTERS AND VARNISHERS are this month subjected to examination by Dr. Partridge; and, on pages 187 and 188, he gives many practical suggestions on how they should conduct themselves in order to keep in good physical condition.

PERSONAL.—Mr. Wilder H. Pray is now comfortably ensconced in the new Stivers Repository on Fifth Avenue, opposite Hotel Brunswick, and is surrounded by an attractive stock of carriages, about fifty in number. A private telephone connects the repository with the factory in 31st-st.

THE PAINTERS' JOURNAL FOR MAY shows its appreciation of our "Painting Department" by republishing five columns therefrom; but it scrupulously acknowledges all such selections, and we therefore not only do not complain, but beg to thank our enterprising contemporary for the compliment thus conferred.

ANOTHER CALENDAR FOR 1884, highly attractive in appearance, has been received by us from the Franklin Bank Note Co., of this city. Owing to its large dimensions, and particularly to the size of the figures, which are about an inch in length and as clear as they are large, we find this calendar specially valuable for ready reference.

"LIFE."—Any one who appreciates humor is pretty sure to get his money's worth whenever he invests ten cents in a copy of "Life," which now holds a well-established and well-merited position of supremacy in the department of fun. Its illustrations deserve special commendation, by reason both of their artistic treatment and genial and high-toned humor.

"HOW'S TRADE?"—A detailed reply to this live question of the day will be found in the review bearing the above-named title, which appears in this number, pages 193 to 196, inclusive. The general result seems to be "Fair."

STRIKES, AND HOW TO AVOID THEM.—We present, on pages 191 and 192, a specially interesting installment of Mr. John W. Britton's testimony before the Senate Committee, which relates to the "Causes of Strikes, and How to Avoid Them."

THE HUB PRIZES, the award of which is duly announced in this number (pages 173 and 174), have already been distributed, with the exception of the four "Hub Medals of Merit," therein mentioned. These have been ordered, and Messrs. Tiffany & Co., the makers, promise to deliver them to us at an early date, when they will be suitably inscribed, and promptly forwarded to the respective winners.

THE "BLACKSMITHS' HAND-BOOK OF CARRIAGE IRONWORK" is the title of a pamphlet just issued by Mr. W. N. Fitz-Gerald, of this city, which contains twenty-two tables, detailing the kinds and sizes of iron best adapted to certain standard styles of carriages, together with numerous hints and directions of value to the carriage blacksmith. It is neatly printed, and bound in heavy paper. Price, 50 cents.

PERSONAL.—Mr. Wm. P. Fest, draftsman with Messrs. Jas. B. Brewster & Co., of 25th-st., New-York, sailed for Europe on May 24th, on the White Star steamer *Brittanic*. He expects to be absent about ten weeks, during which time he will visit London and Paris, and his old home in Stuttgart. Quite a delegation of friends was present at the steamer on the day of his departure, including Mr. James B. Brewster, Superintendent Plumb, and Messrs. Wilkins, Ortmann, Kehrl, etc.

A TESTIMONIAL BOOM.—In this era of booms, it has occurred to Messrs. Valentine & Company to take a consensus of their patrons on the subject of varnish. The result is a number of fresh testimonials, mostly expressive of reiterated approval of former opinions. It is certainly a handsome showing, and the signatures are those of builders whose names alone are sufficient endorsement. From France and England also come expressions of perfect satisfaction.

THE COACHING CLUB.—The Annual Spring Parade of the Coaching Club, held in this city on Saturday, May 24th, was the occasion of a brilliant display of fine coaches and superb horseflesh, not to mention the gentlemen whips and their gaily attired lady guests. Col. Jay, the President of the Club, led the line, and following were fifteen other coaches, all well appointed, and admirably handled by their respective owners. The route was the usual one, up Fifth Avenue, through Central Park, and thence returning to the Hotel Brunswick, where the members of the Club and their guests afterward dined.

OPEN BALLOT FOR C. B. N. A. PRESIDENT.—As promised last month, we present in this number, pages 197 and 198, the first installment of an informal ballot we have instituted for the purpose of testing the inclinations of both Honorary and Active Members as to the candidates for Presidential honors at the next Convention of the Association. The result of this ballot, thus far ascertained, ought to prove highly gratifying to present officers of the Association, for it offers conclusive evidence that the present management of the Association's affairs is entirely satisfactory to the members, so far as heard from. We have been specially pleased to notice an entire absence of sectional jealousy, the Western members voting for Eastern candidates, and *vice versa*, with the utmost freedom.

NATIONAL BANKRUPT ACT CALLED FOR.—The New-York Chamber of Commerce, last October, appointed a committee to submit at a future meeting a paper suggesting reforms to the present laws regarding assignments in bankruptcy cases, especially such changes as will prevent the preferring of certain creditors. It is also the intention of this body to press upon Congress the necessity of its passing a national bankrupt act. It is to be hoped that, in case of their succeeding with Congress, we shall have an act free from the objections of the former one, and one whereby the creditor may realize more than ten per cent. of his claim, even though the register and official sharks should be compelled to accept only a fair remuneration for their services.—*Milinery Trade Review*.

OVER-PRODUCTION.—It seems the general opinion among thinkers in the carriage trade that over-production has been the cause of recent depression. The following words of wisdom are taken from Bonfort's *Wine and Spirit Circular*, and apply equally well to all branches of trade: "The usual cut-and-dried opinion of our financial journals and money articles is that the general feeling of suspicion in mercantile circles is superinduced by the operations of the gamblers in Wall-street; but the fact is that the Wall-street operations bear the same relations to the general business of the country that the hands of a clock do to the works. The lack of confidence that exists in the community at large is the real cause of the present depression. There is no reason for its existence. Last year's crops were exceedingly good, most of them within a fraction of the best we have ever raised; and when the imaginary evil is looked squarely in the face it will disappear, and be heard of no more till we go through another upward phase, and overtrading again produces its natural consequences."

NEW-YORK STATE.

RICHARD ECCLES, Auburn, N. Y., has taken his brother into partnership. The firm is now R. & N. Eccles.

A. E. & J. H. CHRISTIE, sleigh and wagon builders, of Nyack, N. Y., write under date of May 17th: "Business is very fair with us."

THE CORTLAND WAGON CO., Cortland, N. Y., have issued a catalogue illustrating all the styles made by the Company, including omnibuses. We have but one fault to find with it. It is lithographed work, and, somehow, a lithographic draftsman seldom knows how to draw a vehicle.

CARRIAGE AND SLEIGH-MAKING IN NYACK, N. Y.—While in Nyack recently, we visited the two most prominent manufacturers of carriages and sleighs located there, namely: Mr. E. L. Wright and Messrs. A. E. & J. H. Christie. The bulk of Mr. Wright's business is in sleighs, and he enjoys an enviable reputation for excellence of styles, careful workmanship, and fine finish. Several new patterns designed by him will make their appearance next winter. Mr. Wright reports his order-book well filled, and says that new orders are coming in daily, so that there will be no slack times with his employes this summer. The business of Messrs. Christie is about equally divided between carriages and sleighs, although they are more generally known to the trade as specialists in the latter class of work. Sleigh-building has hardly yet fairly set in, but they are making extensive preparations to have a full stock on hand when the sleigh season opens. Several designs of last season will be slightly modified, and they have developed other quite new designs. They have a fine repository for the display of carriages, both of their own make and other well-known manufacturers. Their reputation as producers of first-class work is well established, and they have their full share of repairing, all hands being busy at this time.

NEW-ENGLAND.

PERSONAL.—Mr. Chauncey Thomas, of Boston, on receipt of latest advices, was pleasantly located in London, Eng., and reported his health much improved.

PERSONAL.—Mr. H. E. Morrill, with A. N. Parry & Co., of Amesbury, Mass., made us a call on May 6th, while taking a business trip in this vicinity. Mr. Morrill is one of Mr. Gribbon's most faithful pupils in the Corresponding Class; and he is making rapid progress as a carriage draftsman.

"OUTING AND THE WHEELMAN" is the title of the illustrated monthly formed by the recent consolidation of the two monthlies known as *Outing* and *The Wheelman*. The change has proved beneficial to the subscribers of both, for the periodical in its present form—as shown by the April number, now before us—combines the former attractions of both, and adds various new ones "to boot." Its present office of publication is No. 175 Tremont-st., Boston.

A LANDMARK GONE.—Speaking of the changes in business, the New-Haven *Register* in a recent issue says: "Yesterday afternoon the few remaining workmen finished their labors which closed the manufacture of carriages at J. J. Osborn & Co.'s works on Park street. This house was established in 1827, when they built the factory on Park street, which is the only building now standing that was used for the purpose at that time. Brewster, Cook, Mix, Hoadley and Day were then the only carriage-makers in the city. The business of the firm was founded by Hubbard & Hooker, who were succeeded by Hooker & Wilcoxson, followed by Hooker & Osborn, who opened successful carriage repositories in the south. After several years they dissolved, Mr. Osborn continuing under the firm name of J. J. Osborn & Co., and two years later admitting a partner under the name of Osborn & Adriance, which lasted till 1879, when the old name of J. J. Osborn & Co. was resumed. This house has always enjoyed an enviable reputation for superiority of workmanship, and, as Mr. Osborn proudly states, always paid 100 cents on the dollar."

MIDDLE STATES.

STAR AND CRESCENT.—The Dexter Spring Co., Hulton, Pa., have issued a new edition of their illustrated catalogue. If you want to know all about the "Dexter," send for it.

FIRE.—A fire at Mechanicsburgh, Cumberland Co., Pa., on the night of May 17th, destroyed F. Seidle's wheel works. It originated in the boiler-room, supposed to have been caused by heat from the boilers. A large quantity of lumber and finished stock, stored in yards and adjacent buildings, was also destroyed. The loss amounts to about \$50,000; insurance, \$12,000.

NOVELTIES IN CARRIAGE HARDWARE.—One of the neatest price-lists of the carriage hardware trade is H. M. Strieby & Co.'s illustrated catalogue of 1883, and this has now been rendered still more complete by the addition of a twelve-page supplement, just issued, which brings before the trade the articles added to their line during the past year. Two attractive new styles of gear irons are shown, intended for the best grades of light work, while the maker who cannot fit all his work, up to the largest Surreys, with a finished step ready to bolt on, may safely advertise a very odd style of vehicle. A new yoke for the middle of a Portland sleigh brace is a novelty, and will interest makers. If any of the firm's customers or friends have failed to receive a copy of the catalogue or supplement, they will be pleased to mail the same upon application.

WESTERN STATES.

"THE HUB OF ILLINOIS" is the title of an editorial in a recent number of *The Casket*. Decatur is its subject.

A GAY CART.—J. G. Gay & Son, Ottawa, Ill., are introducing a new Road-cart that seems to be well-spoken of locally.

THE Merchant and Manufacturer of Cincinnati, of recent date, has an appreciative and extended notice of the house of the Jas. Driscoll & Sons Co., carriage-builders, of Springfield, Ohio.

BUGGIES IN THE WEST.—Haight & Sovereign, Rockford, Ill., will add new machinery to their factory. They can now turn out 500 dozen neck-yokes per month, or double last year's capacity.

SMALL, BUT NEAT.—A. Stone & Sons, Chicago, Ill., have issued an engraved folder in which they state concisely why their work is worthy of patronage. Their removal to new quarters at 169-175 Ogden Ave., is also mentioned.

PERSONAL.—Mr. J. F. Studebaker, of the Studebaker Bros. Mfg. Co., South Bend, Ind., returned on Sunday, April 27th, from a two months' business trip to France for the purchase of Percheron horses for his Colorado stock-farm.

"THE WEBSTER CART" forms the subject of a colored fashion plate just issued by the Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich., which compares favorably with the best of the plates which *The Hub* has thus far developed.

PERSONAL.—Mr. Chas. E. Morrill, manager of the Chicago branch house of Valentine & Co., and Vice-President of the Lawson Varnish Co., sailed for Europe by the *Celtic* on Saturday, May 3d, together with his wife and daughter, and will be absent several months.

PERSONAL.—Mr. Chas. A. Francis has resigned his position as draftsman with the Henry Killam Co., in New-Haven, and removed to South-Bend, Ind., where he has accepted the position of draftsman in the carriage department of the Studebaker Bros. Mfg. Co. works, recently vacated by the resignation of Mr. W. R. Connor.

KANSAS APPRECIATES A "DASH THROUGH THE PARK."—J. Lyon, of Leavenworth, Kansas, says: "*The Hub* grows better every month;" and he adds: "You may send me 100 copies of Gray-Parker's illustrated sheet, 'A Dash Through the Park,' with my business card printed on them. Business here is now picking up. Owing to the wet weather, sales have hitherto been slow and behind last year, but they are better now."

CHANGE OF NAME.—The Cordesman & Egan Co., Cincinnati, O., are succeeded by The Egan Co., who will, as usual, continue to make the line of wheel and spoke machinery with which the name is identified. We have also received a photograph showing the dismal and moist appearance of their shops during the recent flood. We should, under the circumstances, have preferred an office on the roof rather than the first floor during the great dampness. With Western energy, the company was in working order soon after the flood subsided, and although its stock was largely watered, it is, as usual, worth a premium.

THE NEW CAB SYSTEM IN CHICAGO.—Now that Chicago has a cab system, it is promised cabs in great numbers. Mention has already been made of the fact that a company has been organized to operate Hansom Cabs,

and this is followed by the prospectus of a second company. The first company charges twenty-five cents per mile for each passenger. The second company is organized with a capital of \$400,000, which has already been subscribed. Its plan, as outlined, is to rent out Cabs to the drivers. Carrying charges are announced to be twenty-five cents for the first mile and a half, and fifteen cents for each additional mile, for one or two passengers. The Gurney Cab Co. has likewise arranged to enlarge its service, and all three companies expect to have their cabs ready by the time of the holding of the National Convention.

THE CARRIAGE PRODUCT OF CINCINNATI increased from \$1,122,222, eight years ago, to \$8,100,000 in 1882. The number of hands employed in 1882, according to the report of J. F. Blackburn, Esq., Secretary of the Board of Trade and Transportation, was 4,465; while the capital invested aggregated \$2,010,000, and the real estate occupied was valued at \$1,365,000. If, to the production of carriages and buggies, were added that of wagons, etc., it would show the grand aggregate value of vehicles to have been, in 1882, \$9,000,800, in comparison with \$6,833,634 in 1881, showing an increase in one year of \$2,167,166, while in 1882 there were employed 5,115 hands, in comparison with 4,182 in 1881; cash capital employed \$2,360,000, compared with \$1,662,500, and real estate occupied valued at \$1,635,000, in comparison with \$1,005,000. Cincinnati is thus employing in one industry more than one-half as many persons as were engaged in all the industries of the city in 1840. It is estimated that the number of vehicles manufactured in 1882 reached 100,000, so that the number of articles manufactured in Cincinnati, of this character, must have averaged about 33 per hour. Making allowance of 20 feet for each vehicle, with horses attached, this would make a procession 380 miles in length.

SOUTHERN STATES.

FIRE.—A portion of the Owensboro' Wagon Factory, Owensboro', Ky., was burned on May 22d, together with a large quantity of hubs and spokes. Loss, \$20,000; insurance, \$10,000.

GEORGIA ENTERPRISE.—*The Constitution*, of Atlanta, Ga., in its correspondence from Barnesville, Ga., speaks of the enterprise of the latter place, and mentions, as noteworthy, that it has the second largest carriage factory in the State. This is the shop of Summers & Murphy, consisting of six large buildings, covering a half acre. They employ 25 hands. They turn out from 300 to 350 new jobs each year.

SOUTHERN CARRIAGE BUILDERS.—The *Atlanta Constitution* of May 16th, contains the following particulars respecting the convention of the Georgia Carriage Builders' Association, held in that city on May 15th: "The Carriage Builders' Association convened yesterday morning at 10 o'clock in Concordia Hall, and was called to order by President Jones. Letters of regret were read from several absent members. The question as to why bands on hubs become loose was discussed freely. A committee was appointed to prepare a memorial to Congress praying for the protection of forest trees. The needs and wants of the Association were discussed at length. An election of officers for the ensuing year was held, with the following result: W. W. Collins, of Macon, President; J. W. Weitzell, of Atlanta, Secretary; G. W. Walker, of Gainesville, Assistant Secretary, and J. M. Smith, Treasurer. T. E. McMurray, of Jacksonville, J. T. Auld, of Elberton, and R. H. Jones, of Cartersville, F. C. Seals, of Abbeville, Ala., G. W. Sirrine, of Greenville, S. C., were elected Vice-Presidents; and Rev. J. M. Smith, Chaplain, and delegate to the Carriage Builders' National Association, to be held in St. Louis in October. Macon was selected as the place for the next annual meeting of the Association."

CANADA.

IMPROVED BUSINESS PROSPECTS IN CANADA.—Mr. J. L. Bronsdon, of Toronto, reports as follows, under date of May 1st: "The carriage trade is improving in Canada, and has a much healthier appearance than it had a few months ago, as confidence seems to have been restored by the promising appearance of the coming crops."

DINNER-HOUR.

"A little nonsense, now and then,
Is relished by the wisest men."

QUOTATIONS RELATIVE TO VEHICLES.

"What can Tommy Onslow do?
He can drive a phaeton-and-two!"—*Old English Ballad*.

"As much in the way as the third wheel to a cart."—*From the German*.

"A HOLE in a will large enough to drive a cart and oxen through it.—JUDGE TOURGEE, in "*Hot Plowshares*."

A WASP went buzzing to his work,
And various things did tackle;
He stung a boy, a yaller dog,
And made a rooster cackle.
Then on a varnish-drummer's cheek
He settled down to drill;
But after prodding half an hour,
Alas! he broke his bill.

"Six drowsy draymen driving down in Devon:
One dreamed his mate had come, and then there were seven."
—*Old Rhyme*.

OPENING OF THE SEASON AT NEWPORT.

(See Loose Sheet accompanying.)

THE feature of our "Dinner Hour Department" this month consists of a representative sketch by Mr. Gray-Parker, entitled "Opening of the Season at Newport," which accompanies this number in the form of a double-page loose sheet. We only hope it will meet with the same warm approval on the part of our subscribers that his previous contributions have received.

TRADE **VALENTINE'S** MARK.

"THE STANDARD FOR QUALITY."

EXECUTIVE OFFICE NEW-YORK TRANSFER COMPANY.

NO. 1323 BROADWAY,
NEW-YORK, JAN. 10, 1879.

VALENTINE & COMPANY, NEW-YORK.

Gentlemen: We take pleasure in offering you this testimonial in favor of your varnishes.

The Repair Department of this company is probably larger than that of any similar concern in this city, the company having about FOUR HUNDRED VEHICLES of its own, embracing Freight Trucks, Express Wagons, Concord Stages, Crystal Cabs, Clarences, Landaus, Coupés and Buggies.

It is our aim to show the very best results in the conduct of this department; we therefore make thorough and exhaustive tests of the several kinds of material necessary in every branch of the Repair Shop, with a view to using only that which will insure the greatest economy, always considering that the BEST is the CHEAPEST, all things considered. Such a test has been gone through with in the matter of varnishes.

We made our trials of your "Wearing Body" in comparison with the two most celebrated English brands, "Best Wearing Body" and "Best Durable Body," they ranking the highest among English varnishes, and being the goods which we had used exclusively for years.

These experiments were begun with new boards, all prepared alike, on which each of the varnishes named were applied; these boards were placed out doors with different exposures, and at different periods during several months an examination was had, and the result noted. This was continued till the luster of one had entirely departed—another showing myriads of cracks, and another panel of the same turning grey—while yours had a fair gloss, and no indication of cracking or changing.

We are free to acknowledge that we did not expect this result, not because we were prejudiced in favor of English varnish, or against yours, but we knew the English to be good, and all previous trials to find anything better had only brought us to the conclusion to stick to the English; but the result of the above mentioned test was so satisfactory that we were induced to go still further, and we applied your varnish on some of EVERY CLASS of our vehicles in the case of some vehicles, using yours wholly when we had other jobs doing about the same service, so we could make comparisons, and on others, using yours in connection with other goods on different parts of the same vehicle. This course has shown the effect produced by continual washing of the carriages, and the varied conditions of having them stand in front of hotels, exposed to the sun on one side and shade on the other, by standing at ferries and depots, and also while in stables subject to the action of ammonia. After two years of partial use and thorough testing, our verdict is decidedly in favor of your goods. We find them to possess SUPERIOR WORKING QUALITIES and GREATER LUSTER, as well as MORE DURABILITY than either of the English varnishes named, and we unhesitatingly commend and recommend your varnishes, which we have adopted for use in our Painting Department to the exclusion of all others, and we welcome it as another article of American manufacture which we believe will soon supersede the best foreign production.

We wish you the success to which you are so justly entitled, by reason of your large venture of capital, together with your skill and perseverance in competing with such worthy rivals.

(Signed) NEW-YORK TRANSFER CO.

1884.

It is now over five years since we gave expression to our opinion of your varnishes, based upon our experience, and are very happy to state that actual experience confirms our belief then expressed, and the question of what varnishes to use has long since been fully settled with us.

We can most earnestly recommend the use of your varnishes by all makers of vehicles, both for DURABILITY and BEAUTY OF FINISH.

NEW-YORK, MARCH 1, 1884.

Very respectfully,

(Signed)

A. S. DODD,

General Manager New-York Transfer Co.

RYERSON & BROWN,

LIVERY STABLES.

CITY STABLES—9 and 24 West 44th-street; 21 East 12th; 118 West 32d; 149 West 35th; 2 West 45th; 41 and 632 Madison Ave.; 523 and 763 Fifth Ave.; 221 West 53d-street.

NEW-YORK, OCT. 20, 1877.

VALENTINE & COMPANY,

Gentlemen: The vehicles on which your "Wearing Body" varnish was put, side by side with the best English, are coming in to be done over, and they prove, beyond question, that in DURABILITY and RETENTION of LUSTER yours is decidedly ahead, fully sustaining all your claims for it, and the award given you by the Centennial Board of Judges.

We had used only the English varnish for three years previous to the

past two, when we commenced to use yours partially, and we now adopt yours to the exclusion of all others, believing them the best.

It pleases us to subscribe our name to the indorsement of American manufactures. Yours truly, (Signed) RYERSON & BROWN.

I fully subscribe to the above, adding that your varnishes please me as much in the working as in any of their other superior qualities.

(Signed)

JOHN DEGAN, Foreman Painter.

1884.

Having continued to use only your varnishes since we gave you our testimonial in October, 1877, we are now able to confirm all that we stated at that time, and to add that our experience with your goods in the meantime has been entirely satisfactory.

Yours truly,

(Signed)

RYERSON & BROWN.

NEW-YORK, FEB. 20, 1884.

VALENTINE & COMPANY,

MANUFACTURERS OF

Fine Coach Varnishes and Colors,

NEW-YORK,

245 Broadway.

CHICAGO,
68 Lake-street.

BOSTON,
153 Milk-street.

PARIS,
91 Champs-Élysées.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

Conrad B. Day & Co., Philadelphia, Pa... 222
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct..... 240
Manufacturers of and Dealers in Carriage Hard-
ware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York.
Kemper Bros., Cincinnati, O..... 222
Ten Eick & Kent, 1553 Broadway, New-York 222
S. D. Kimbark, Chicago..... 220

AXLES.

R. Cook & Sons, Winsted, Ct..... 237
Carriage and Wagon Axles.
Dalzell & Co..... 211
Improved Collinga Axle.
Goodyear & Ives, New-Haven, Ct..... 222
Carriage Axles. Specialty: Steel's patent Sand-
box Axle.
A. D. Howe & Co., Coshocton, O..... 209
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pitts-
burgh, Pa..... 223
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilming-
ton, Del..... 218
The Quaker Axle.
Wood, Smith & Co., Fort Plain, N. Y..... 207
Fort Plain Spring and Axle Works.
F. W. Wurster, Brooklyn, N. Y..... 224
Axles of all kinds.

BODIES.

F. T. Clymer, Wilmington, Del..... 234
Carriage Bodies and Carriage Parts.
Jas. Driscoll & Sons Co., Springfield, O.... 225
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co.,
Jackson, Mich..... 204
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago..... 220
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O..... 211
Bodies.

BOLTS.

Columbus Bolt Works, Columbus, O..... 210
Carriage Bolts, Forgings, Clips, etc.
Norwich Bolt Works, Norwich, Conn..... 237
Genuine Norwry Iron Bolts.

CARRIAGES FOR THE TRADE.

D. A. Altick & Sons, Lancaster, Pa..... 207
M. L. Albrecht, Fort Wayne, Ind..... 219
Heath Carts and Gears.
Anderson, Harris & Co., Cincinnati, O.... 220
Carriages, Buggies and Phaetons.
D. Argerbright, Troy, O..... 228
Road Cart.
F. A. Babcock & Co., Amesbury, Mass.... 216
The Clarkson Road Cart.
Forder & Co., Limited, London, Eng..... 210
The Royal Hansom.
T. T. Haydock, Cincinnati, O..... 208
Buggies for the Trade a Specialty.
L. B. Johns, Fort Wayne, Ind..... 230
Road Carts.
Northwestern Sleigh Co..... 218
Carts.
Renick, Curtis & Co., Greencastle, Ind.... 219
The Renick & Curtis Patent Road Cart.
Geo. White, Greenville, Pa..... 230
White's Patent Phaeton Buckboard.
L. & M. Woodhull, Dayton, O..... 235
Buggies, Phaetons and Carts.
Youngstown Carriage and Wagon Co.,
Youngstown, O..... 206
Buckboards and Buggies.

GLASS.

Vanhorne, Griffen & Co., 25 Park Pl., New-
York 222
Bent and Beveled Glass. Importers of French
Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

Baeder, Adamson & Co., Philadelphia, Pa. 234
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and
Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 224
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

Active Mfg. Co., Cincinnati, O..... 227
The E. D. Clapp Mfg. Co., Auburn, N. Y.. 236
Carriage Hardware of every description. Spe-
cialty: Lamb's Seat Fastener.
C. B. Clarke, St. Louis, Mo..... 226
Silvester Patent Tire.
C. Cowles & Co., New-Haven, Ct.....
Carriage Hardware and Patented Specialties.
(See also Lamps and Mountings.)
Cortland Box Loop Co., Cortland, N. Y... 237
Cortland Buckle Loop.
Crandal, Stone & Co., Binghamton, N. Y. 233
Carriage Hardware.
Dayton Malleable Iron Co., Dayton, O.... 230
Carriage Hardware.
Eberhard Mfg. Co., Cleveland, O..... 206
Carriage, Wagon and Saddlery Hardware.
W. M. Farr, Dowagiac, Mich.....
Common Sense Sand and Mud Band.
M. T. Gleeson, Columbus, O..... 214
Fine Carriage Mountings.
Herbrand Co., Fremont, O..... 214
Herbrand Gear Irons.
Geo. W. Kerr, Bridgeport, Ct..... 214
Cart Irons.
S. D. Kimbark, Chicago..... 220
Carriage and Wagon Hardware.
Kopscay & Polya, New-York City..... 209
Carriage Door Lock.
Geo. G. Larkin..... 238
Carriage Top Stays.
Metal Stamping Co., New-York..... 220
Carriage Trimmers' Hardware and Patented
Novelties. (See also Mountings, and Trimmers'
Materials.)
Queen City Forging Co., Cincinnati, O.... 210
Carriage Hardware.
H. B. Pitner & Co. Plymouth, Ind..... 237
Whip and Line Holders.
Rubber Step Mfg. Co., Boston, Mass..... 225
The Rubber Covered Carriage Step.
Schollhorn & Tiesing Mfg. Co., New-Haven,
Conn.....
Coach Hardware.
H. D. Smith & Co., Plantsville, Ct.....
.....4th cover page
The "Encircled S" brand of Fine Carriage
Forgings.
H. M. Strieby & Co., Newark, N. J..... 207
Fine Forgings. Specialty: Timken Irons and
Side-bar Steps.
Topliff & Ely, Elyria, Ohio..... 216
Tubular Bow Sockets for Top Buggies, and Con-
necting Rods for Side-spring Buggies. Seat-
risers.
Trenton Iron Co..... 235
Wire for Ties and Can Openers.
Vehicle Shaft Supporter Mfg. Co., Cincin-
nati, O..... 233
Iron Shifting Rails.
J. H. Williams & Co., Flushing, N. Y..... 227
Steel and Iron Drop Forgings.
White Mfg. Co., New-Haven, Ct..... 237
Pole Crabs.
Wolff & Co., Cincinnati, O..... 232
Carriage Hardware and Woodwork.

IRON AND STEEL.

McClure & Field, Boston, Mass..... 206
Specialty: B. & M. Tire Steel.
S. D. Kimbark, Chicago..... 220
American and Norway Iron, Steel Tire, etc.
Wm. & Harvey Rowland, Frankford, Phila-
delphia 212
Iron and Steel. (See also Springs.)

LAMPS.

C. Cowles & Co., New-Haven, Ct.....
(See also Hardware and Mountings.)

LEATHER.

Evans Artificial Leather Co., Boston, Mass. 238
A Substitute for Leather.
T. P. Howell & Co., Newark, N. J..... 232
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

Abbott & Co., Hudson, Mich..... 224
Little Giant Hub-Borer.
J. W. Barber, North Adams, Mass.....
Spoke Tenoner and Wheel Horse.
W. F. & John Barnes, Rockford, Ill..... 221
Foot and Steam Power Machinery.
Bentel, Margedant & Co..... 237
Woodworking Machinery.
Capital City Mach. Works, Columbus, O... 206
Standish Imp. Foot Power Hammer or Oliver.
Chapman & Goss, Milwaukee, Wis..... 233
Universal Polishing Machine.
Combs & Bawden, Freehold, N. J..... 238
Tire and Axle Upsetting Machine.
The Egan Co., Cincinnati, O..... 230
Carriage Wood-working Machinery.
Cyclone Mfg. Co., DeWitt, Iowa..... 240
Iowa Cyclone Hub Borer.
Defiance Machine Works, Defiance, O.... 206
Hub, Spoke, Wheel and Bending Machinery.
J. A. Fay & Co., Cincinnati, O..... 236
Woodworking Machinery.
George W. Heartley, Toledo, O..... 210
Little Giant Axle Box Press.
Mason Wheel Co., Crown Point, N. Y..... 238
Wheel Tenoning Machine.
H. A. Moyer, Syracuse, N. Y..... 234
Hub Boring and Boxing Machine.
C. F. Pettingell & Co., Amesbury, Mass... 224
Full line of Patented Carriage and Wheel
Machinery.
Uhler & Benton, New-York..... 232
The Lewis Axle Machine.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

John Stephenson Co. (Limited), New-York, 207

PAINTS and PAINTERS' MATERIALS.

Billings, Taylor & Co., Cleveland, O..... 206
Coach and Car Colors and Varnishes.
Carey, Ogden & Parker, Chicago, Ill.....
.....3d cover page
Coach and Car Colors.
F. W. Devoe & Co., New-York..... 207
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa.... 232
Ivory Drop Black.
Miles Bros. & Co., New-York.....
Brushes of all kinds. Specialty: Coach Painters'
and Varnishers' Brushes.
Chas. Moser & Co., Cincinnati, O..... 237
Palm Bros. & Co., Cincinnati, O..... 204
Transfer Ornaments.
Palm & Fechteler, New-York..... 205
Transfer Ornaments.
Reno Bros., Pulaski, Pa..... 226
French Umber Filler.
A. Smith & Sons, New-York City 205
Chas. D. Thum, Philadelphia, Pa..... 210
Coach Painters' Brushes. Specialty: The Thum
Half Elastic Varnish Brush.
Jno. L. Whiting & Son, Boston, Mass.....
Specialties: Whittings' Pearl Flowing Varnish
and King Chisel Brushes.

PUBLISHERS.

"The Hub," New-York City.....
..... 209, 211, 219, 227, 229, 238, 239
E. Taylor & Co., London, Eng..... 240
"The Stable."

SPRINGS AND GEARS.

M. Barry, Valparaiso, Ind....	220
Gears.	
Bridgeport Spring Co., Bridgeport, Ct....	216
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.	
Canton Spring Co., Canton, O.....	233
Carriage, Wagon and Seat Springs.	
Cleveland Carriage Bow Co.....	236
Sell's Platform Gears.	
Dexter Spring Co., Hulton, Pa.....	212
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.	
Gormley Spring and Gear Co., Fostoria, O.	211
The Gormley Patent Spring and Gear.	
Henry Spring Co., Winsted, Conn.....	
The Henry Single-leaf Rib Spring.	
Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa.....	223
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)	
Longstreth & Ayer Mfg. Co., Columbus, O.	228
The L. & A. Adjustable Side-spring.	
Magner & Thomas Spring Co., Wellsville, N. Y.....	214
Improved Thomas Spring.	
C. M. Murch, Cincinnati, O.....	215
Spring and Gear.	
Mulholland Spring Co., Dunkirk, N. Y....	208
Mulholland Springs and Gears.	
T. D. Olin & Co., Cincinnati, O.....	236
The Olin Springs.	
Rice Spring & Carriage Co., Pittston, Pa..	219
Rice Carriage Springs.	
C. W. Saladee, Torrington, Conn.....	209
"Duplex Springs."	
Wm. & Harvey Rowland, Frankford, Philadelphia, Pa.....	212
Fine Springs from Swedish Stock. Also Iron and Steel.	
The Shuler Springs and Gears.	
D. W. Shuler, Amsterdam, N. Y.....	223
Geo. F. Thompson, Oshkosh, Wis.....	231
Thompson's Improved Climax Gear.	
Henry Timken, St. Louis, Mo.....	213, 234
The Timken Cross-Spring.	
Tomlinson Spring Co., Newark, N. J.....	222
Fine Springs and Axles.	
R. Tomlinson Spring and Axle Works, Bridgeport, Ct.....	210
Springs: Specialty, The Hamlin.	
Tuthill Spring Co., Chicago, Ill.....	237
Fine Springs, including Timken, Pennoyer, Stickle, Groot, Brewster, and other patent Springs.	
Whitney Spring Co., Poughkeepsie, N. Y.	223
The Whitney and Storm Side-bar Springs.	
C. R. & J. C. Wilson, Detroit, Mich.....	212
The Wilson Side-bar Cross-spring.	
Wood, Smith & Co., Fort Plain, N. Y....	207
The American Standard Springs and Axles.	

TOOLS.

Jno. Bayliss, Stamford, Ct.....	227
Forge and Tuiere.	
Chambers, Bros. & Co., Philadelphia, Pa..	210
Bolt and Rivet Clippers.	
S. D. Kimbark, Chicago.....	220
All latest improvements in Tools and Machines.	
J. W. Manneer, Rochester, N. Y.....	237
Manneer's Bench Drill.	
Porter & Wooster, Boston, Mass.....	230
"Easy" Bolt Clipper.	

TRIMMERS' MATERIALS.

Active Manufacturing Co., Cincinnati, O...	227
Carriage Dashes. (See also Hardware.)	
American Tack Co., Fairhaven, Mass.....	205
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)	
Ashtabula Carriage Bow Co., Ashtabula, O	228
Leather Covered Bow.	
Bridgeport Coach-Lace Co., Bridgeport, Conn.....	222
Coach Laces and Trimmings.	
Cleveland Dash Co., Cleveland, O.....	231
Carriage Dashes and Fenders.	
Cleveland Carriage Bow Co., Cleveland, O.	236
Leather-covered Carriage Bows.	
Cortland Box Loop Co.....	237
(See Hardware.)	
Crandall, Stone & Co., Binghamton, N. Y..	233
Carriage Trimmings.	
Dalton, Barton & Co., London, Eng.....	225
Carriage Laces and Trimmings.	
Durham & Wooster, New-Haven, Conn...	226
English Canopies	
Excelsior Top Co., Cortland, N. Y.....	235
Carriage Tops.	
English & Mersick, New-Haven, Conn....	240
Carriage Broadcloths, Canopies and Canopy Top Fringes.	
Haight and Sovereign, Rockford, Ill.....	225
Shuman's Swivel and Rockford Neck Yokes.	
Hardt, Von Bernuth & Co., New-York City,	233
Carriage Cloths, etc.	

Harris Button-Hole Co., Lim., New-York.	228
Pat. Crimped Leather Knob Eyelets.	
Japanese Hair Mfg. Co., Jersey City, N. J.	224
Japanese Hair and Japanese Moss.	
L. B. Johns, Fort Wayne, Ind.....	230
Carriage Tops, Cushions, etc.	
S. D. Kimbark, Chicago.....	220
Cloths, Leather, etc., etc.	
Chas. P. Ketterer, New-York.....	235
Wagon Curtain Fastener.	
C. Z. Kroh & Bro., Toledo, O.....	221
Tops, Cushions, Backs, Falls, etc.	
Longstreth & Ayer Mfg. Co., Columbus, O.	228
Dashes, etc.	
Metal Stamping Co., 64 Reade-st., New-York,	220
Parker Carriage Goods Co., Cincinnati, O.	205
Carriage Trimmings in great variety.	
Peel & Elster, Springfield, O.....	231
"IXL" Dash Molding and Neck-yoke.	
F. J. Schmid, New-York.....	224
Hand-made Coach Laces, and all kinds of Trimming Materials.	
Ten Eick & Kent, New-York City.....	222
Carriage and Sleigh Materials of every description.	
Topliff & Ely.....	216
See Hardware.	

VARNISHES, JAPANS, ETC.

Moses Bigelow & Co., Newark, N. J.....	231
Established 1845. Fine Coach and Car Varnish Manufacturers.	
Berry Bros., Detroit, Mich.....	204
Coach and Railroad Varnishes.	
John Babcock & Co., Boston, Mass.....	
.....2d cover page	
Billings, Taylor & Co., Cleveland, O.....	206
Coach and Car Colors and Varnishes.	
DeGolyer & Bro., Chicago, Ill.....	217
Fine Coach Varnishes.	
F. W. Devoe & Co., New-York.....	207
Carriage, Coach and Car Colors.	
Felton, Rau & Sibley, Philadelphia, Pa....	232
Wm. Harland & Son, Merton, Surrey, England.....	2d cover page
On sale in America by first-class dealers in principal cities.	
Hildreth, Templeton & Co., New-York....	
.....2d cover page.	
Superfine Coach and Car Varnishes.	
King Varnish Co., Akron, O.....	203
Fine Coach Varnishes.	
Moller & Schumann, Brooklyn, N. Y.....	
.....2d cover page	
O'Brien Varnish Works, South Bend, Ind..	227
Parrott Varnish Co., Bridgeport, Ct.....	
.....2d cover page	
C. C. Reed & Co., New-York City.....	221
A. Smith & Sons, New-York City.....	205
Stimson & Co., Boston, Mass.....	209
Fine Coach and Car Varnishes.	
Valentine & Company, New-York.....	201
L. M. West, Rockford, Ill.....	224
Carriage-top Dressing.	

WHEELS AND WHEEL STOCK.

Bollenbacher & Sons, Bloomington, Ind...	232
Spokes.	
S. N. Brown & Co., Dayton, O.....	218
Superior Wheels, Hubs, Spokes, etc.	
Crane & McMahon, 38 Park Place, N. Y....	222
(Salesroom, New-York.) Spokes, Rims, etc., and Hickory, Oak and Ash Plank.	
Howard M. DuBois, Philadelphia, Pa. .	235
Wheels, Hubs, Spokes, etc.	
Hagerstown Spoke Works, Hagerstown, Md.	236
Hoopes, Bro. & Darlington, Limited, West Chester, Pa.....	233
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.	
Phineas Jones & Co., Newark, N. J.....	230
Patent and Plain Wheels, Spokes, Hubs, etc.	
Lambertville Spoke Mfg. Co., Lambertville, N. J.....	222
Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.	
Longstreth & Ayer Mfg. Co.....	228
See Springs and Gears.	
Philip Lebzelter, & Co., Lim., Lancaster, Pa.	222
Fine Wheels and Wheel Material.	
New-York Sarven Wheel Co., New-York..	221
Branch of Royer Wheel Co., Cincinnati, O., which sec.	
Rochester Wheel Co., Rochester, N. Y....	226
Wheels, Hubs, Spokes, Rims.	
Royer Wheel Co., Cincinnati, O.....	221
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.	
F. Seidle, Mechanicsburg, Pa.....	207
Wheels and Materials. Shafts, Carriage Poles, Bows, Sleigh Runners, etc. Specialty: The Phoenix Wheel.	

Springer, Morley & Gause Co., Wilmington, Del.,	
Wheels and Wheel Material.	
Winch & Sons, Bryant, Ind.....	207
White Elm Hub Blocks.	
WOODWORK AND MISCELLANEOUS.	
Combination Seat Co., South B nd, Ind...	225
Perkins' Patent Veneer Seats.	
Excelsior Wood Seat Co., Columbus, O...	233
Patent Seat for Carriages and Wagons.	
E. F. French, New-York.....	
Built-up-wood Roofs.	
Herring & Co., New-York City.....	
.....3d cover page	
Herring's Champion Safes.	
S. D. Kimbark, Chicago.....	220
Burr Patent Bodies. Carriage and Wagon Wood Material.	
B. Miller, Paola, Kan.....	238
Miller's Adjustable Horse.	
J. H. Miller, Mansfield, O.....	206
Wanted.	
Swaine & Adeney, London, Eng.....	226
Whip Manufacturers.	
Partner Wanted.....	237

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SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," in its May, June and July issues, free of charge to all carriage mechanics seeking employment, and also to all employers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

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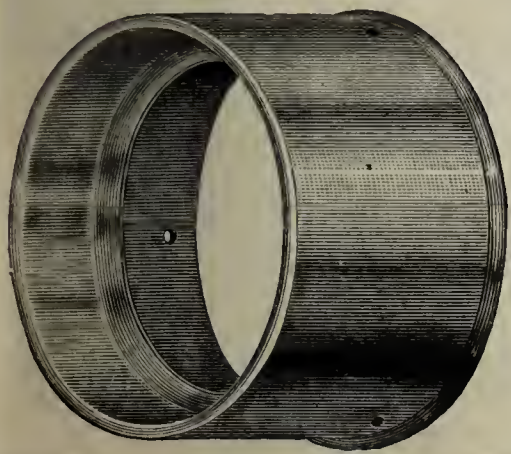
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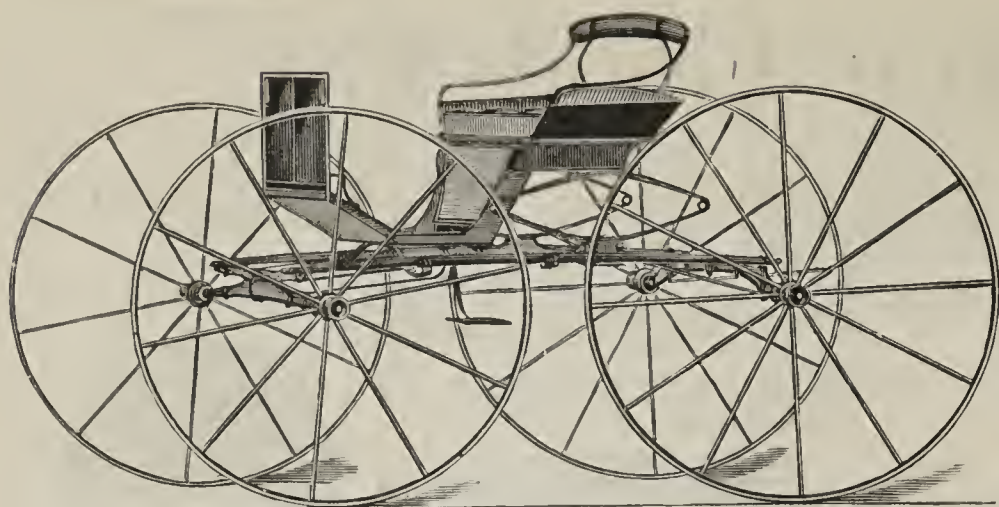
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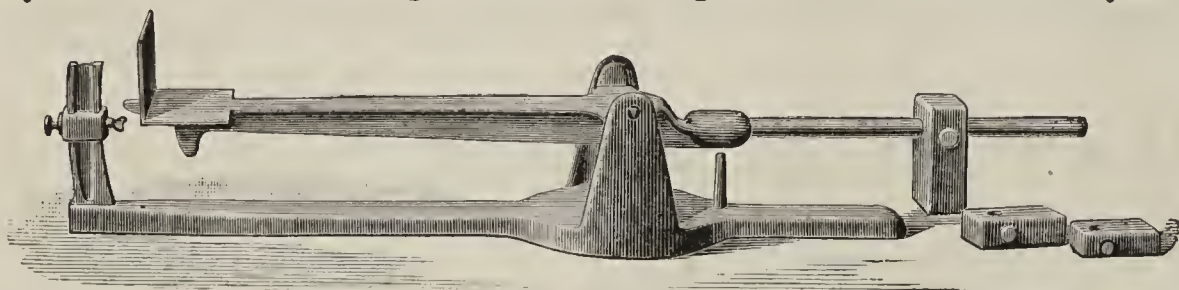
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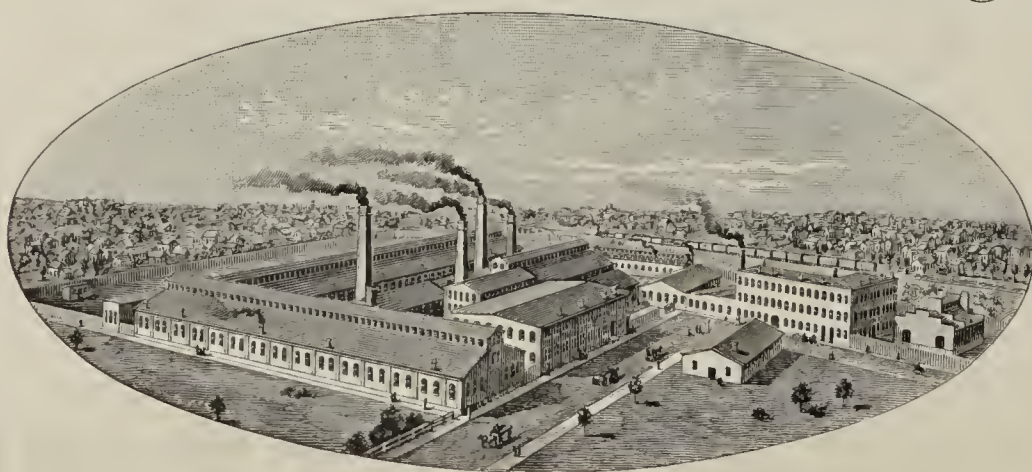
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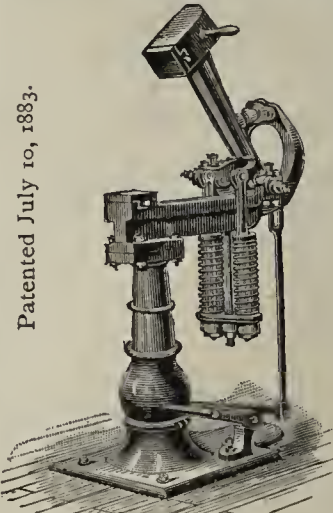
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Will pay for itself in two months.—HAYDOCK Bros., St. Louis.Manufactured by the Capital City Machine Works, Columbus, O.
AGENTS.—S. A. Smith, General Agent, 154 Lake-st., Chicago, Ill.; Simmons Hardware Co., St. Louis, Mo.; Day Bros., 419 and 421 N. Second-st., Philadelphia, Pa.; H. Prentiss & Co., 42 Dey-st., New-York; S. D. Kimbark, Chicago, Ill.; T. B. Rayle & Co., Detroit, Mich. A. Burton & Co., Chicago, Ill.

McCLURE & FIELD,

(Successors to Boyd & McClure.)

Importers
andDealers in
inBar Iron and Steel especially for Carriage Builders.
SPECIALTY.—The B. & M. Tire Steel, round and square edges. Bevel or Chamfered Iron for Perches, Shafts, etc. Low prices, superior quality. Write for particulars. 5 & 7 Custom House St., Boston, Mass.

OFFICES:
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MANUFACTURERS OF

CHICAGO:
COFFIN, DEVOE & CO.,
176 Randolph-street.

Carriage, Coach and Car Colors

IN OIL AND JAPAN.

Fine Carriage and Coach VARNISHES and JAPANS, DRY COLORS,

AND A LARGE ASSORTMENT OF

Fine Brushes for Carriage, Coach and Car Painting.

All kinds of Painters' Supplies and Artists' Materials.

F. W. DEVOE & CO. received at the National Exposition of Railway Appliances, held in Chicago, June, 1883, the highest award, against all competition, for the best manufacture of Car-body Colors, the Only Gold Medal; and also the highest award, a Silver Medal, for their manufacture of Coach, Carriage, Varnish and Artists' Brushes, and the highest award, a Silver Medal, for other goods of their manufacture.

H. M. STRIEBY & CO., Newark, N. J.,

MANUFACTURERS OF

SPECIALTIES IN

Carriage Hardware.



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JOHN STEPHENSON CO. (Lim.),

MANUFACTURERS OF

Street Cars and Omnibuses,



NEW-YORK

PURCHASE

White Elm Hub Blocks

OF

WINCH & SONS.

Samples can be seen at FORT WAYNE, IND., or at
BRYANT, IND.

Address, BRYANT, IND.

F. SEIDLE,

Mechanicsburg, Cumberland Co., Penna.,

MANUFACTURER OF

Warner, Sarven, Phoenix and Plain Wood Hub Wheels,

of all sizes and kinds.

Spokes, Felloes, Hubs, Shafts, Poles, Bows, Sleigh
Runners, Plow Handles, etc.

SEND FOR NEW REDUCED PRICE LIST.

"THE AMERICAN STANDARD."

Fort Plain Springs, — Fort Plain Axles.

Fort Plain Spring and Axle Works,

WOOD, SMITH & CO.,

FORT PLAIN, NEW-YORK.

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D. A. ALTICK.

S. W. ALTICK.

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ESTABLISHED 1848.

D. A. ALTICK & SONS,

Wholesale Manufacturers of

Light Carriages, Phaetons, Buggies, etc.

(BREWSTER SPAR BUGGIES A SPECIALTY.)

42 AND 44 WEST ORANGE-STREET,

LANCASTER, PA.

Trade Supplied. Send for Catalogue and Prices.

T. T. HAYDOCK, Wholesale Carriage Manufacturer

Cor. Plum and 12th-streets, CINCINNATI, O., U. S. A.

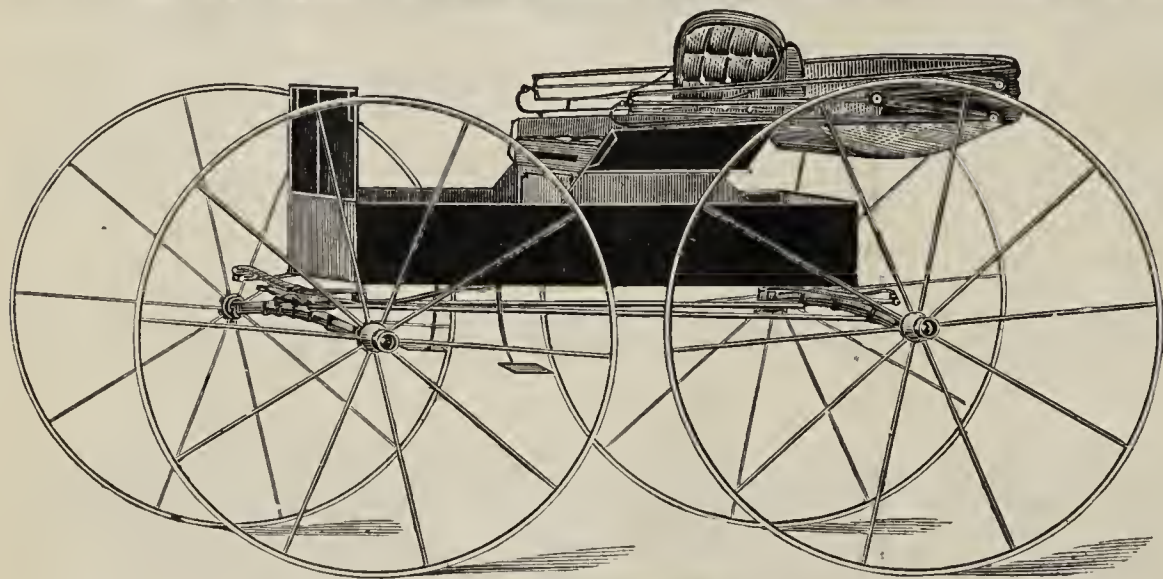


No. 100. RAIL SURREY JUMP-SEAT.

Showing children in the act of shifting the seats while the horse is in motion. So simple is the construction of this Jump-Seat that this can easily be done by children, a simplicity not belonging to any other Jump-Seat.

BUGGIES FOR THE TRADE A SPECIALTY.

Also carriage parts, such as Bodies, either ironed or unironed; Gears, either with Springs clipped on or left off, as required; Tops, Seats, Cushions. In fact, every part that belongs to a Carriage, Buggy or Phaeton (all being interchangeable) will be furnished so as to be conveniently put together by the carriage-builder, who can paint to suit himself, thus furnishing his customers with work with his own name-plate and warrant, at much less than it would cost to build the vehicle throughout. **SEND FOR CATALOGUE.**

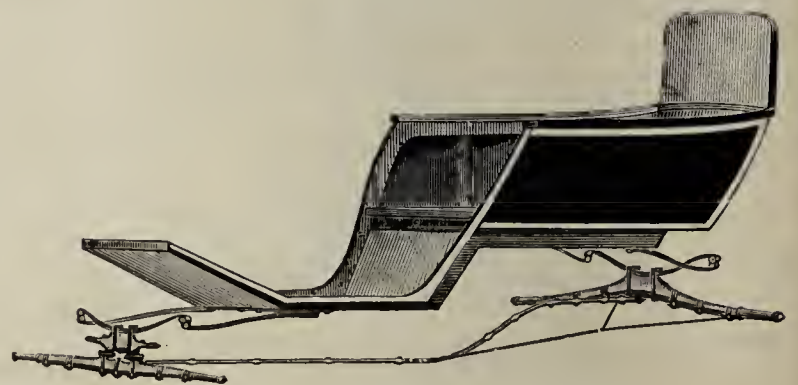
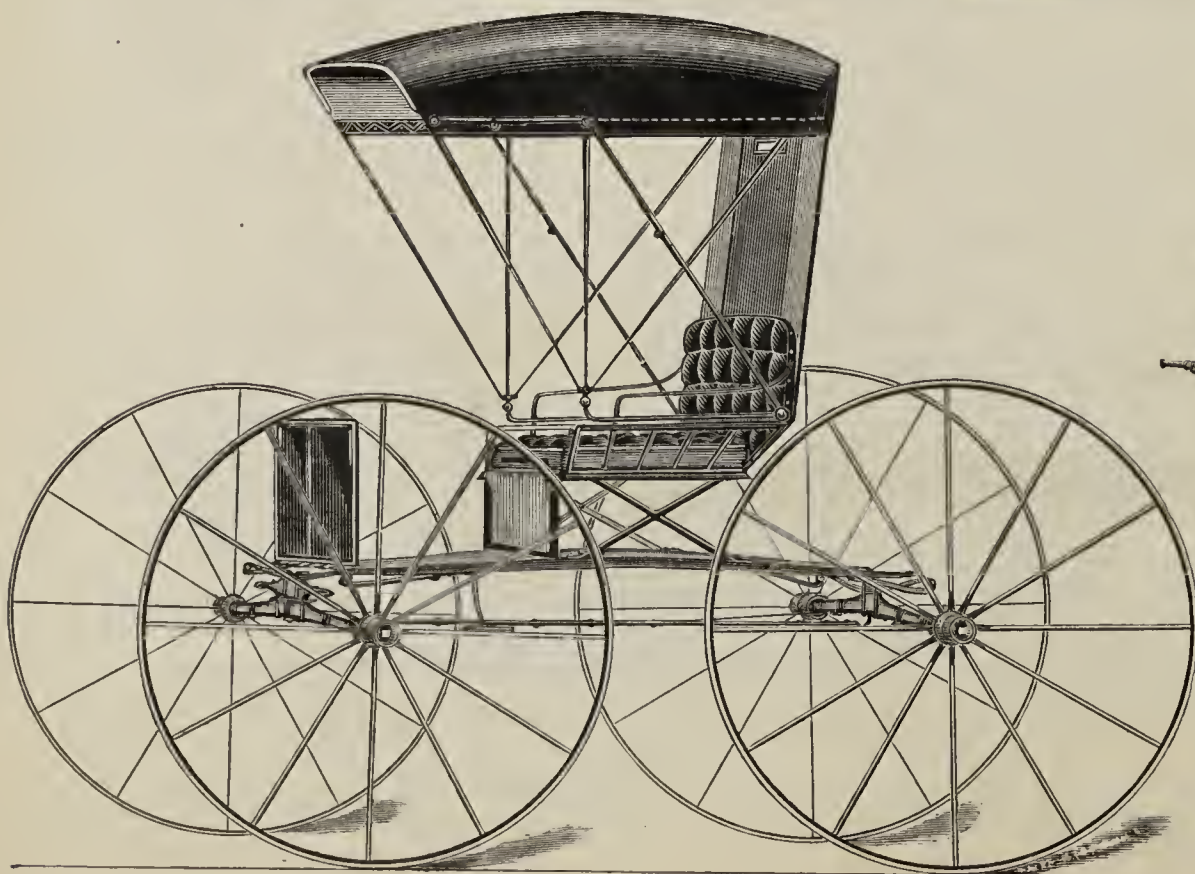


THE MULHOLLAND SPRING

For Low-down Vehicles without
Side-bars.

**THE EASIEST-RIDING AND MOST STYLISH
WAGON EVER INVENTED.**

THOUSANDS OF SETS OF THEM now
in use, giving perfect satisfaction.



We manufacture the best and finest-finished Gear on the American market.

SEND FOR SAMPLE GEAR.

Price-list and Circular furnished on application.

**Mulholland Spring Co.,
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M'f'r's of Coach AND Car VARNISHES	Stimson & Co.	149 Milk St. BOSTON. MASS.
--	--------------------------	---

Kopcsay's Patent

CARRIAGE DOOR LOCK

The handles turn in either direction. Movement easy.

These locks are *superior* to ALL other carriage door locks, because :

The handles, turning EITHER WAY, open the door.

The *interior* handle leaves no opening on the *surface of the lining*; the mechanism is, therefore, protected from dust, dirt and water, and rust prevented.

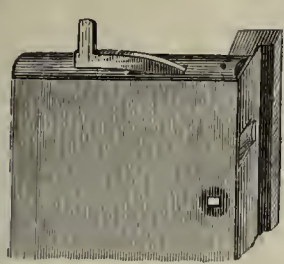
The *thickness* is reduced to 7-16 of an inch. Doors provided with these locks *can be made* $\frac{1}{8}$ of an inch *lighter* than hitherto, *without injury* to strength.

The locks are adapted to *all classes of work*, and are graded to the work expected to be performed.

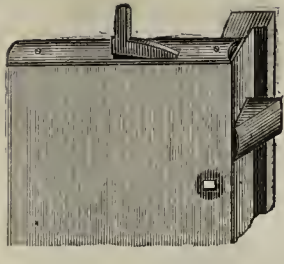
They have been approved by leading builders, as being in advance of any lock heretofore offered to the trade.

Send for price-lists and illustrated circulars to

KOPCSAY & POLYA,
714 7th Ave., New-York."

Dust, Dirt and
Waterproof

LOCK OPEN.



LOCK SHUT.

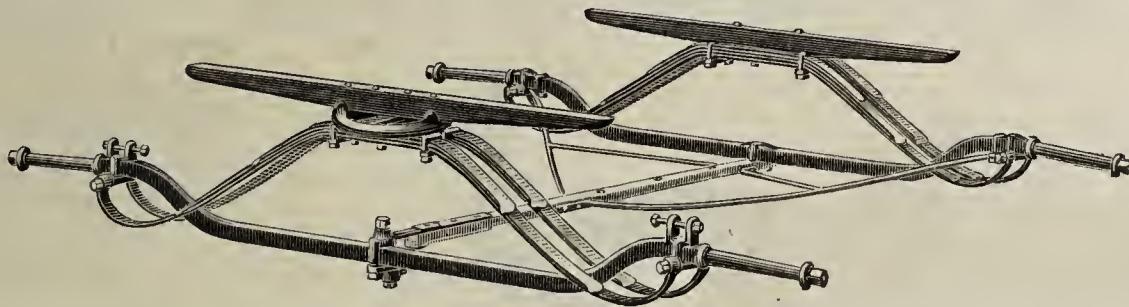
FREE.

Examine our offers on page 229, and see if it is not a chance to get a profitable advertisement free of charge. "A dash through the Park," with your card nicely printed underneath, will not be thrown away by many of the recipients.

Send 3-cent stamp for sample.

"THE DUPLEX,"

For all Classes of Business and Pleasure Vehicles.

**A NEW ERA IN CARRIAGE BUILDING.**

For illustrated price-list of *gears and parts*, address,

PATENTED IN THE UNITED STATES AND CANADA.

C. W. SALADEE, Sole Manufacturer for the United States,
TORRINGTON, CONN.

Points of Excellence.

1. Can be oiled without taking off wheel.
2. Can oil without unhitching.
3. Oil reservoir holds enough oil to run 2,000 to 3,000 miles.
4. Is perfectly sand-proof.
5. The box is as easily set as an ordinary box.
6. All washers run in clean oil, and hence will not wear.
7. Oil cannot escape at either end of hub, hence will not collect dirt.
8. The oil tube prevents box from turning in hub.
9. The oil-cup on end of box prevents it slipping back.
10. Will not rattle.
11. Will wear twice as long as the half-patent axle which is in general use.
12. Will not lock.
13. Does not require a larger hub than for the wrought-iron box.

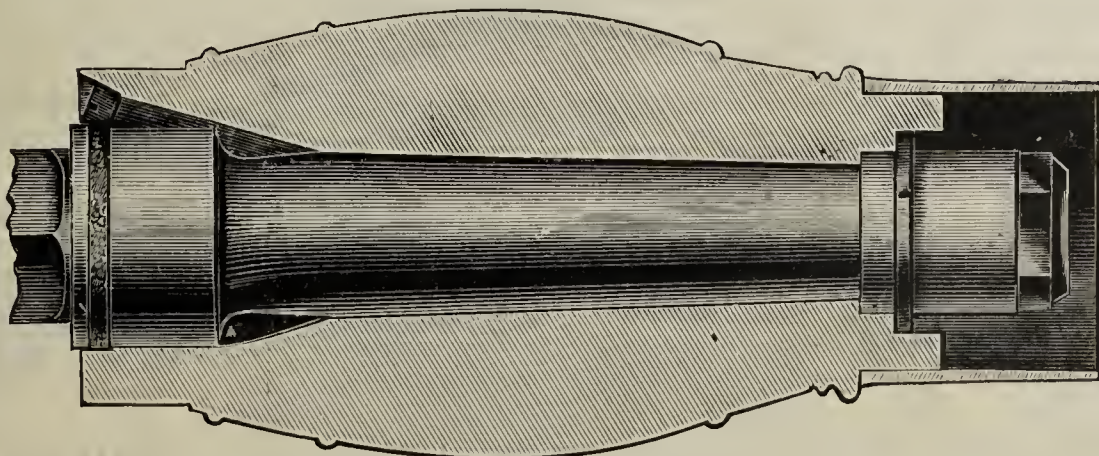
Howe's x Patent x Axle ::

Self-Lubricator and Sand-Proof.

MANUFACTURED BY

A. D. Howe & Co., Coshocton, O.

The Simplest, Cheapest and Best Self-Lubricator made.



Will Furnish, Cash with Order, a Trial Set

$\frac{7}{8}$ Fantail, Fine Steel Axles, for	:	:	:	:	:	\$4.50
Inch " Refined Iron "	:	:	:	:	:	3.50

SEND FOR CATALOGUE AND DISCOUNTS

Houston Hay, Coshocton, O., licensed to manufacture for and sell to the trade.

No handling dirty wheels. No soiling of hands or clothing; a lady can oil if necessary.

No dust or grit falling on the spindle, or washers dropping into the dirt.

When necessary to oil, that being about every two or three months, requires less than one-fourth the time it does to oil the ordinary axle.

The prevalent idea that the spindle and box of an axle should be cleaned at every oiling is correct concerning the ordinary axle, but does not apply to this axle because all foreign substances, such as dirt, grit, etc., are excluded.

When a journal or spindle is kept thoroughly oiled, the wear is almost imperceptible. Hence it follows that as there is nothing on spindle or in the box but oil, it is not necessary to clean them before oiling. Clean castor oil will not gum.

O. E. WALKER, Pres't.

F. W. DINKELMAN, Sec'y.

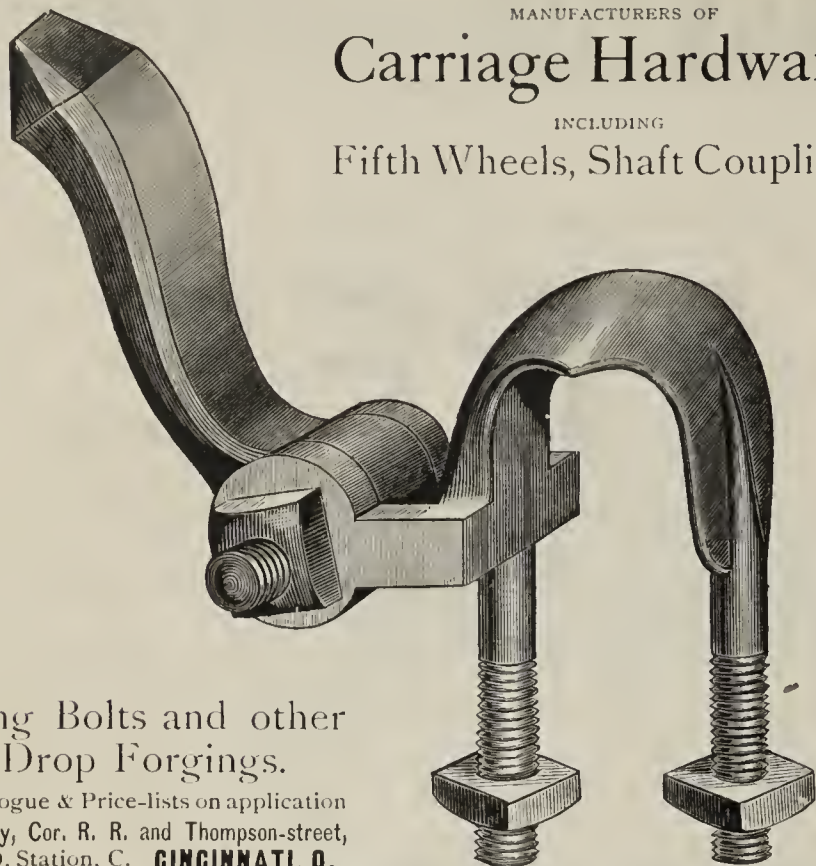
The Queen City Forging Co.,

MANUFACTURERS OF

Carriage Hardware,

INCLUDING

Fifth Wheels, Shaft Couplings,



King Bolts and other
Drop Forgings.

Catalogue & Price-lists on application
Factory, Cor. R. R. and Thompson-street,
P. O. Station, C. CINCINNATI, O.

Get the Best.

CHAS. D. THUM,

150 North Third Street,

PHILADELPHIA,

Manufacturer of every description of

Coach and Carriage BRUSHES,

ALSO

Paint and Sash Tools,

Fitch, Badger and Camel-Hair Var-
nish (extra thick and strong),

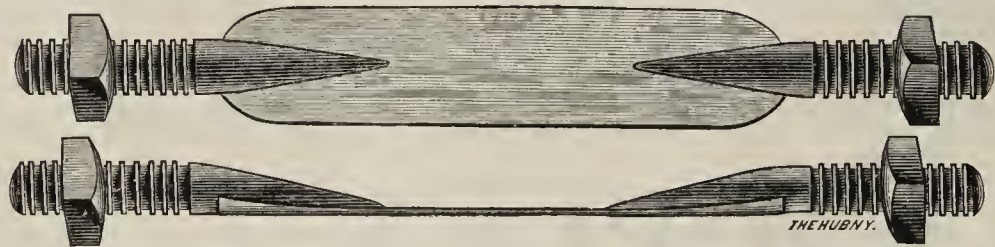
Camel, Ox and Sable Pencils, etc.

The Celebrated THUM HALF-ELASTIC
VARNISH-BRUSH is warranted to stand
until it is worn out. It can be used for finish-
ing without being previously worn down; will
last longer and carry more varnish than any
other brush. Ask your dealer for them, or
send for a circular.



Columbus Bolt Works, Columbus, O.

Special Clips for
Brewster and Tim-
ken Springs.



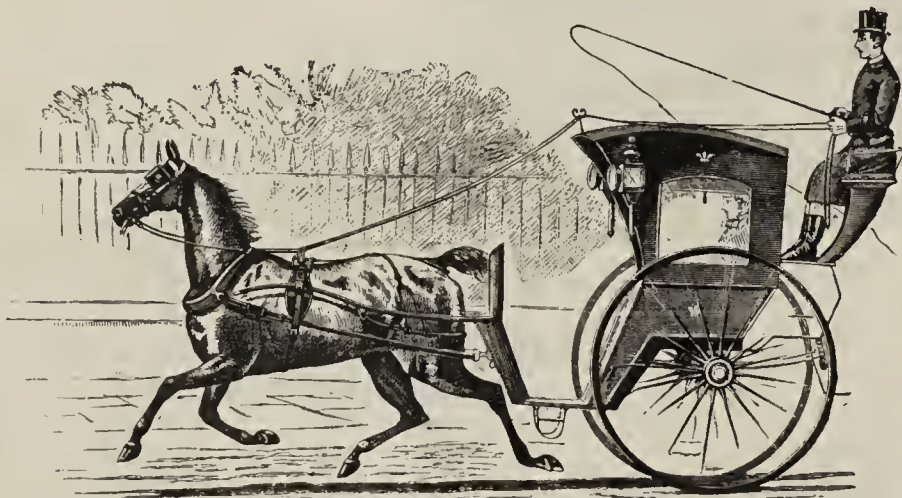
All our product is
made from
Norway Iron only.

The Best Clip for the Money in the World!

Send for 1884 Catalogue and Discounts.

SOCIETY OF ARTS AND TEN OTHER FIRST-CLASS PRIZES.

AS BUILT FOR H. R. H. THE PRINCE OF WALES.



FORDER'S PATENT ROYAL HANSOM.

ALSO PATENTED IN THE UNITED STATES.

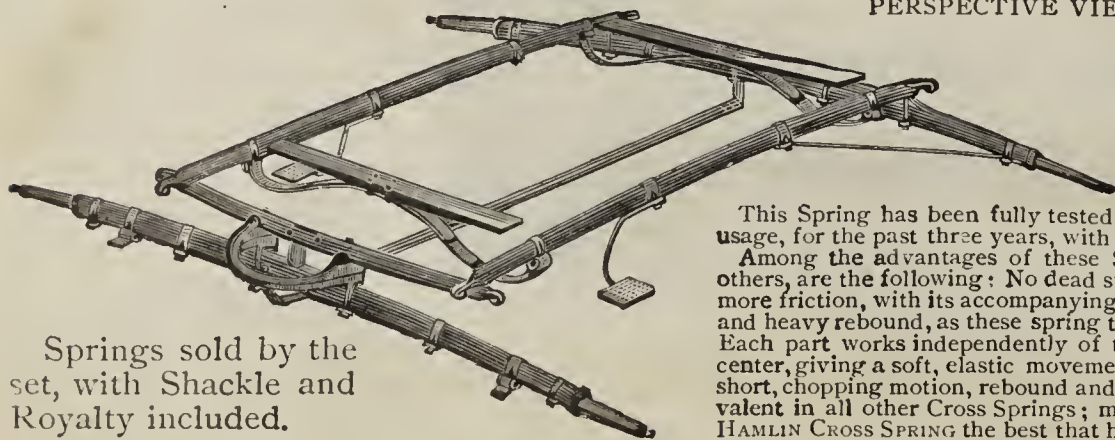
The HAMLIN Patent. A New Era in Cross Springs!

CROSS-SPRING FOR SIDE-BAR VEHICLES.



PERSPECTIVE VIEW.

showing
separation of
the leaves
of spring, and
manner of
clipping.



Springs sold by the
set, with Shackle and
Royalty included.

This Spring has been fully tested, by the severest
usage, for the past three years, with entire success.
Among the advantages of these Springs over all
others, are the following: No dead steel to carry; no
more friction, with its accompanying slow movement
and heavy rebound, as these spring the entire length.
Each part works independently of the other at the
center, giving a soft, elastic movement, free from the
short, chopping motion, rebound and side-roll so pre-
valent in all other Cross Springs; making the G. B.
HAMLIN Cross Spring the best that has yet been pro-
duced, as the body can be set as low as the Brewster.

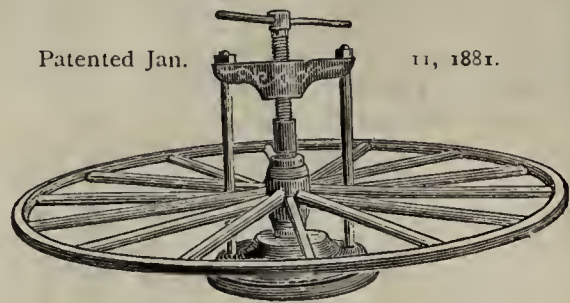
As we are the only Company licensed by the Patentee to manufacture and sell these Springs in the United States,
all others are infringements and will be held accountable by said Patentee. DISCOUNTS GIVEN ON QUANTITIES.

R. Tomlinson Spring and Axle Works, Bridgeport, Conn.

Toledo Spring and Variety Works.

Patented Jan.

11, 1881.



HOUPPT & DAWSON PATENT

Little Giant Axle Box Press,

FOR PUTTING IN AXLE BOXES,

Manufactured exclusively and for sale only by

GEO. W. HEARTLEY,

301 St. Clair St., TOLEDO, O.

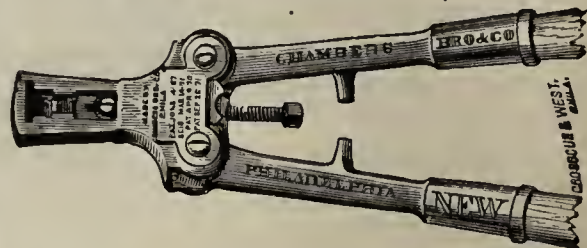
Boxes can be set with this machine without danger of
breaking or bruising them, can be forced in much tighter,
which is a great advantage over driving them, and can be
forced out the same way. The machine, worked by an
ordinary man, is capable of exerting a pressure of
twelve tons, and only weighs 65 pounds.

SEND FOR CIRCULARS AND PRICE-LIST.

Important!

Examine our offers on page 229, and
see if it is not a chance to get a profit-
able advertisement free of charge. "A
Dash through the Park," with your
card nicely printed underneath, will
not be thrown away by many of the
recipients.

Send 3-cent stamp for sample.



Bolt and Rivet Clippers,

IN PRACTICAL USE OVER TEN YEARS,

For cutting off the ends of bolts and rivets, on car-
riages, wagons, harness, etc.

Send for a Circular and Price List.

CHAMBERS, BROTHER & CO.,

52d St., below Lancaster Ave.,

PHILADELPHIA.

Figures Can't Lie!

James Scully, being duly sworn, deposes and says: I am employed as foreman of the Franklin Press Rooms, and do and have been doing the presswork for *The Hub*, and at no time since being so employed have I printed less than six thousand (6,000) copies per month; and further, I printed over seven thousand (7,000) copies each of the January, February, March, April and May issues of *The Hub*, of this year; and am now printing over seven thousand (7,000) copies of the June issue, 1884.

Subscribed and sworn to before me, }
this 21st day of May, 1884. }

W. B. Lewis

Notary Public Kings Co. Certificate filed in N. Y. Co.

James Scully

BODIES.

Illustrated Catalogue and Lowest Prices furnished of Barouche, Phaeton, Jagger, Piano, Surrey and Eureka Bodies.

660.—Grand Phaeton.
With or without our Adjustable Canopy.



MILLER CARRIAGE CO., Bellefontaine, O.

IMPORTANT!

See page 229.



Combination ∴ ∴
∴ Spring and Gear.

Strength, Ease of Motion and Durability,
in Combination with Every Perfect Quality in a Spring.

A few
Points
of
Superiority
over
all others.

There is no Spring that contributes so much to the neat appearance of a buggy.

Lightest Spring for its capacity made for sustaining weight.

No backward and forward motion nor side swing, as in all other side-spring work.

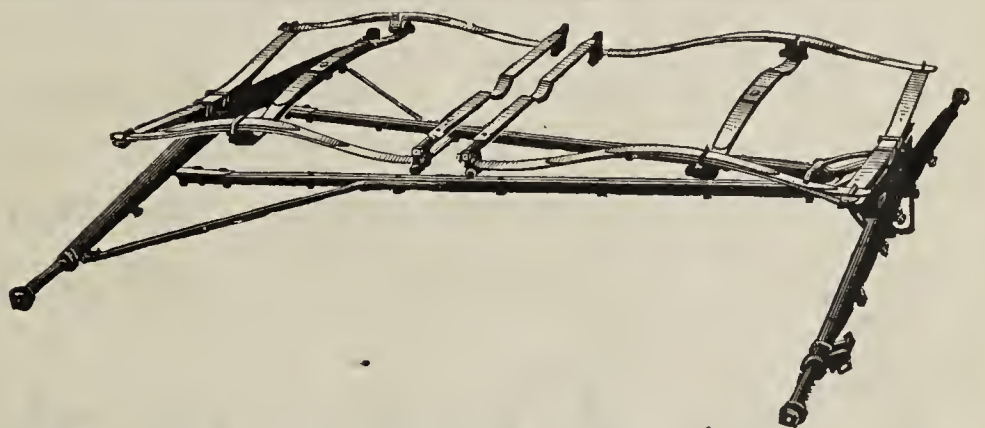
Rides perfectly level; no difference on what part of the body the pressure is placed, weight is evenly distributed over the whole body.

Body can be hung as low as with any other Spring.

Rides easier, and carries a heavier load without injury to the Spring, or any part of the Buggy, than any other Spring now manufactured.

By their peculiar arrangement one Spring assists the other, and the result is the strain is distributed over the whole combination.

The body is attached to the upper Cross-Springs in such a man-



ner as to allow the Spring free action, and there is no binding or strain on the Springs or any part of the Buggy.

A Buggy with these Springs will last one-third longer than with the ordinary spring, and carry the occupant with more than double comfort.

These Springs have been fully tested for more than a year, and in every instance have given entire satisfaction. Fully Warranted.

Springs, Gearing and Buggy Parts For Sale to the Trade.
For full information and prices, address

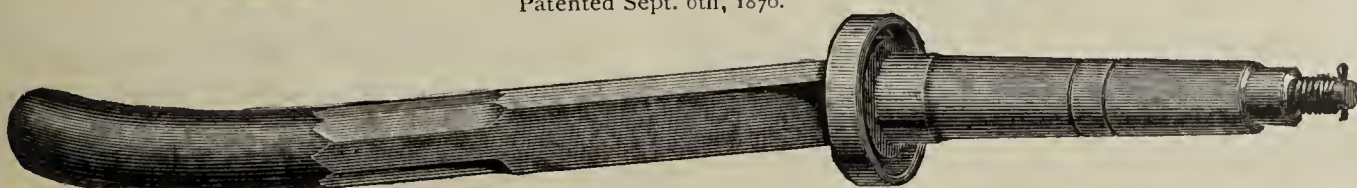
The Gormley Spring and Gear Co., Fostoria, O.

Dalzell's Improved Collinge Axle.

Greatly superior in
all respects
to all other so-called
Half Collinge
and
Improved Collinge
Axles.



Patented Sept. 6th, 1870.



For particulars, address

Dalzell & Co.,

**SOUTH
EGREMONT,
MASS.**

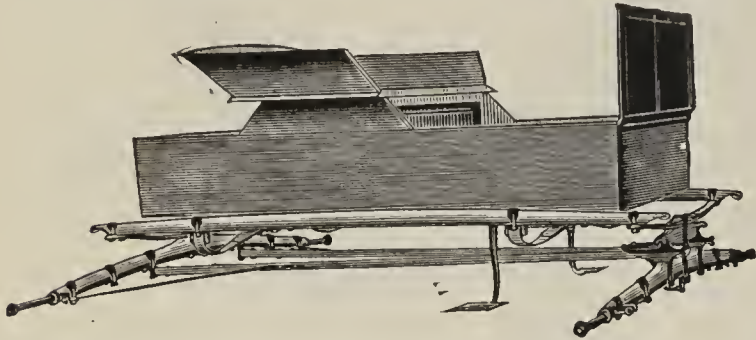
Half-Patent and other styles of Axles, of Best Material and Workmanship.



Patent No. 269,493.

We have recently perfected a new Coupling for attaching our Spring to the body. It is a perfect Anti-rattler, so long as it is in use. We hope to have these Shackles ready for use with our Springs in about 30 days.—C. R. & J. C. WILSON, Patentees.

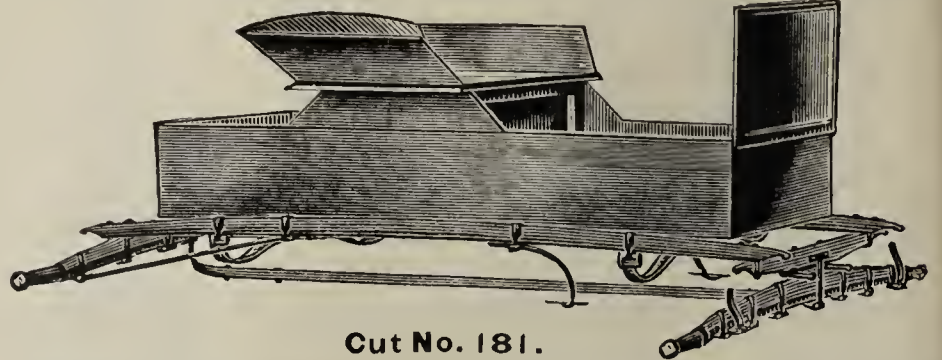
Licensees:—The following well-known spring-makers are licensed to make and sell our Springs: Bridgeport Spring Co., Bridgeport, Ct.; Keystone Spring Works, Philadelphia, Pa.; Tuthill Spring Co., Chicago, Ill.; C. W. Taylor, Gananoque, Ont.; D. & G. Delany, Newark, N. J.; and are sold by dealers in carriage goods and by the patentees.



Cut No. 186.

The Springs in this cut are the Wilson Cross-Springs, and show that by their use the body can be hung as low as by any other spring in the market. Write for prices.

When ordering Springs for Style No. 181, always say Rigid Frame, and avoid mistakes.



Cut No. 181.

The Wilson Spring is *especially* adapted to these gears. Hangs the body low, and is very elastic. Write for prices.

PATENTEES AND MANUFACTURERS, C. R. & J. C. WILSON, Detroit, Mich.

Manufacturers of Fine Carriage and Sleigh Woodwork.

Wm. & Harvey Rowland,

FRANKFORD, PHILADELPHIA,

MANUFACTURERS OF

Oil-Tempered Elliptic, Side and C-Springs,

“Brewster Side-Bar Combination Patented” Springs,

TIMKEN PATENT CROSS-SPRINGS,

Reiff's Patent, Groot's Patent, Champion Spring, Carter's Patent,
Saladee's Patent Crescent Spring for Side-Bar.

ALL WARRANTED OF THE BEST MATERIAL AND WORKMANSHIP.

Messrs. J. B. Brewster & Co. have authorized us to reduce the royalty on the “Brewster Side-Bar Combination Patented” Spring.

Having made an arrangement with the Rice Patent Spring and Carriage Company to make the Rice Patent Spring, we shall soon be ready to fill orders.

The Dexter

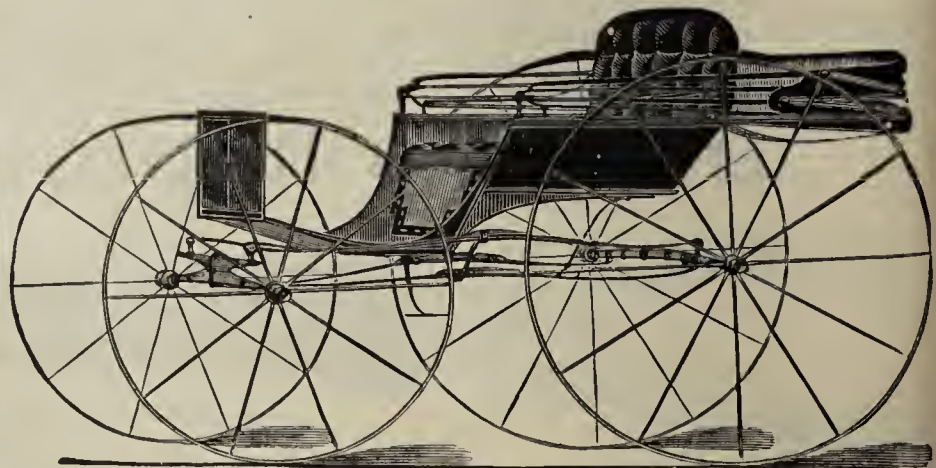
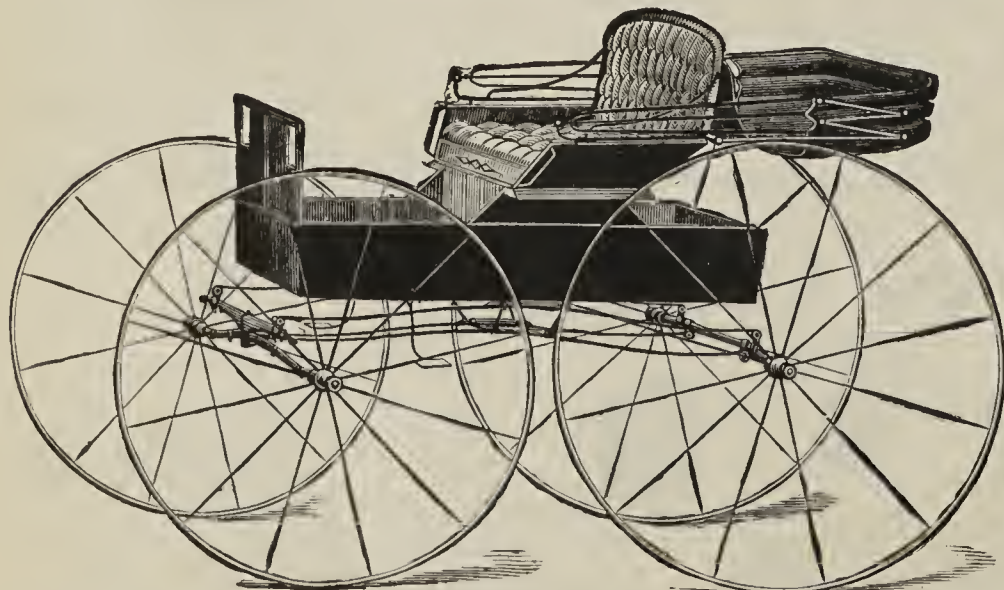


Stands Unrivalled for Durability

and Luxurious Ease of Motion.

—SEND FOR—

New Circular, New Price-list, New Catalogue.



OUR SPECIALTIES: Dexter, Dexter Queen, L. & A. Side-Bar, **SPRINGS AND GEARS.**
and Ludlow

We Manufacture the best finished Gear to be found in any market in the World!

WORKS AT EDGEWATER, A. V. R. R. }
11 miles North of Pittsburgh.

DEXTER SPRING CO., HULTON, Pa., U. S. A.

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Colored Plate No. XLII. CABRIOLET SLEIGH: NEW-YORK PATTERN. Scale, One Inch.

The Hub's

Fashion Plates: Summer Season, 1884.

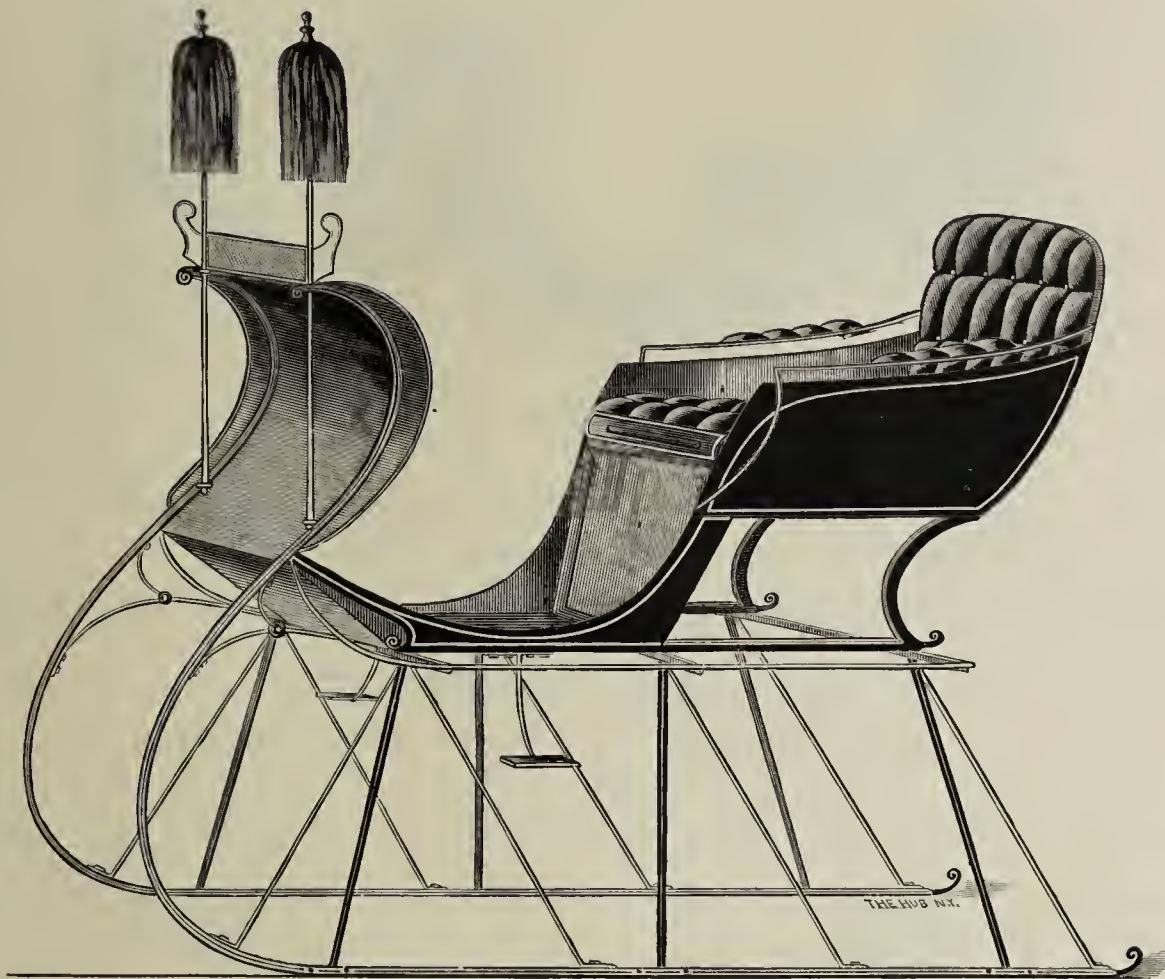


Plate No. 26. NEW-YORK CUTTER WITH OCEE BACK.—Scale, three-quarter inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 251.

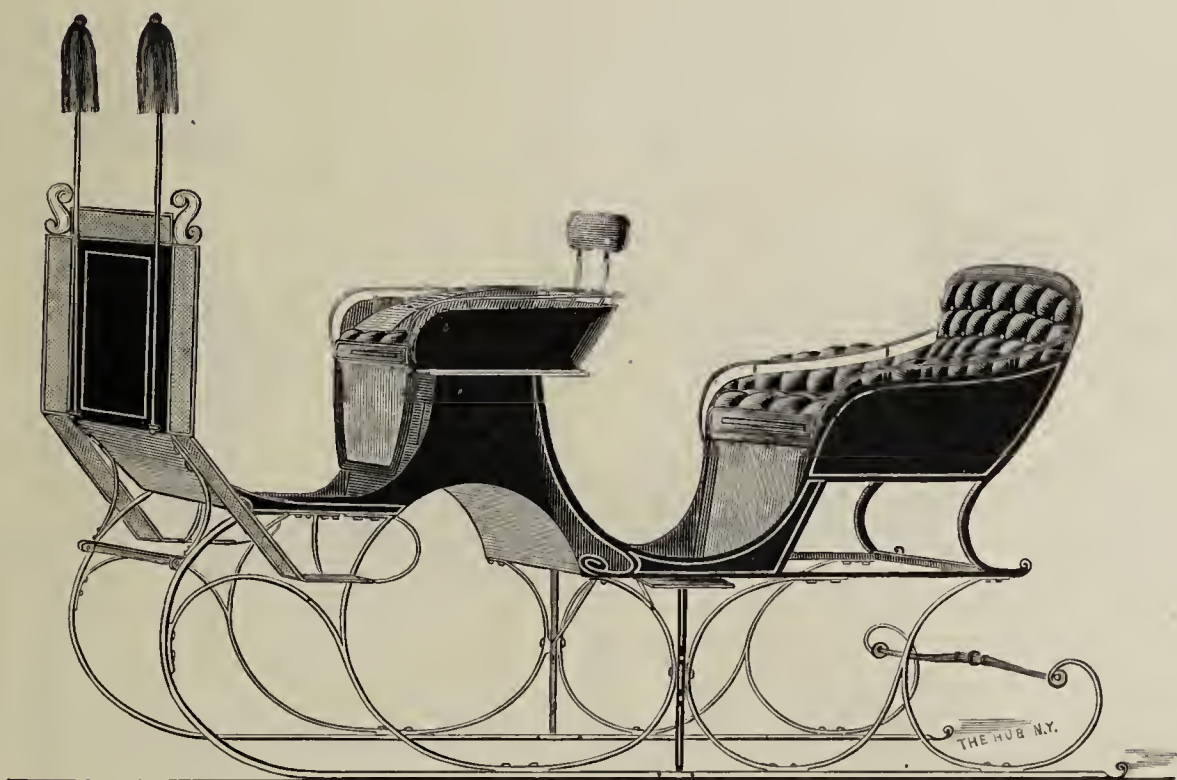


Plate No. 27. CABRIOLET SLEIGH, WITH OCEE BACK.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 252.

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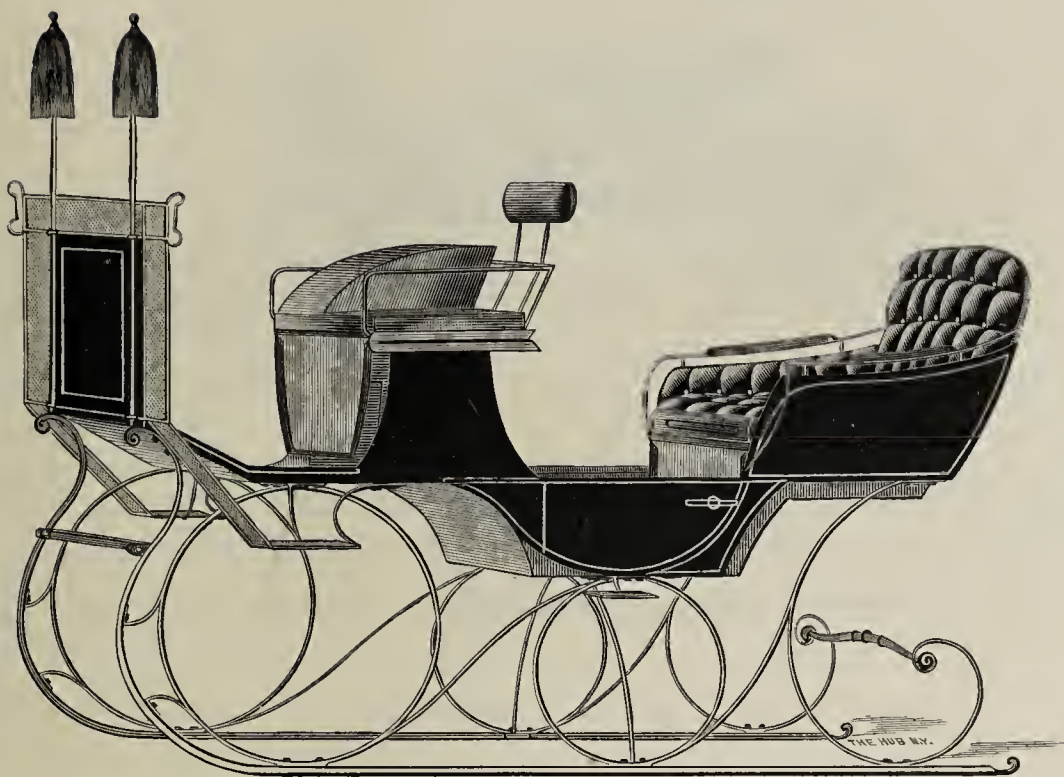


Plate No. 28. CABRIOLET SLEIGH, WITH DOORS.—Scale one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 252.

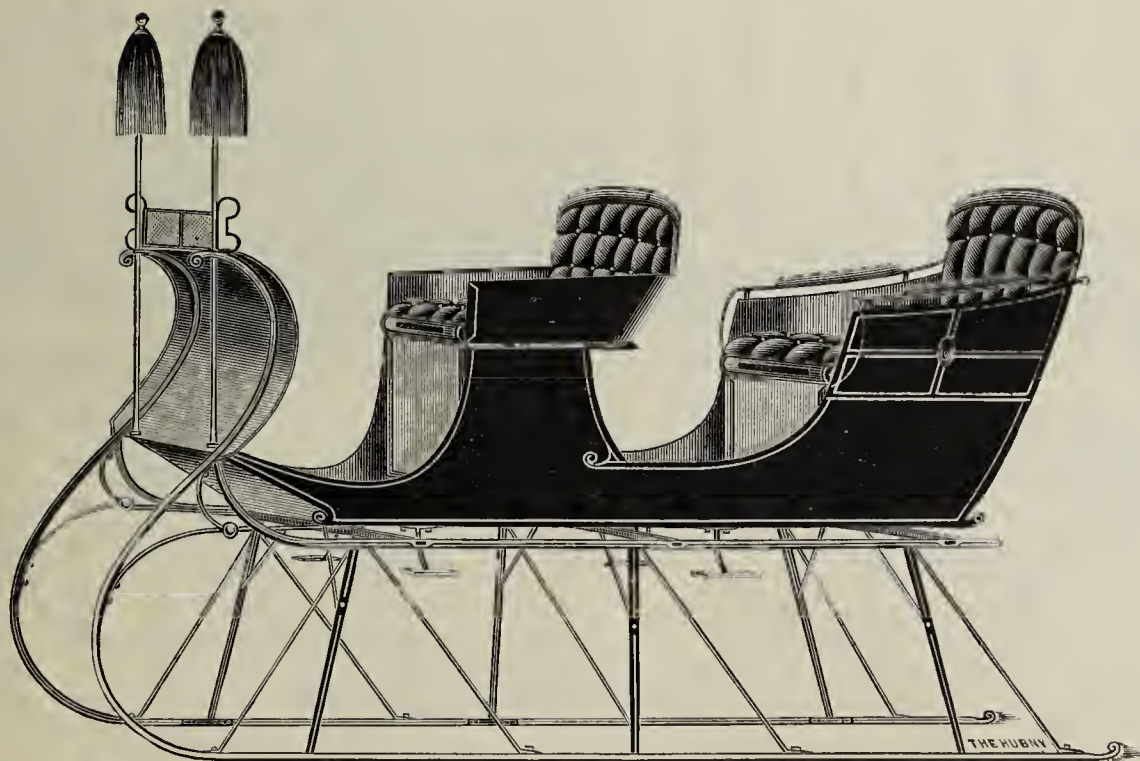


Plate No. 29. FOUR-PASSENGER PORTLAND SLEIGH.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 253.

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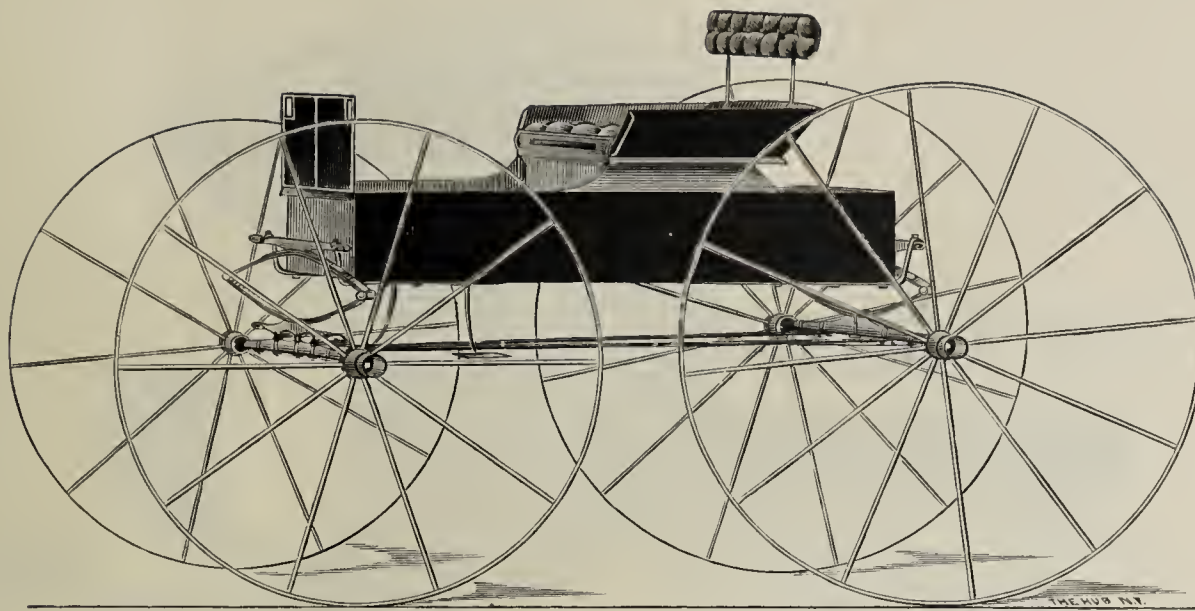


Plate No. 30. SQUARE-BOX BUGGY, ON ELLIPTIC SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 253.

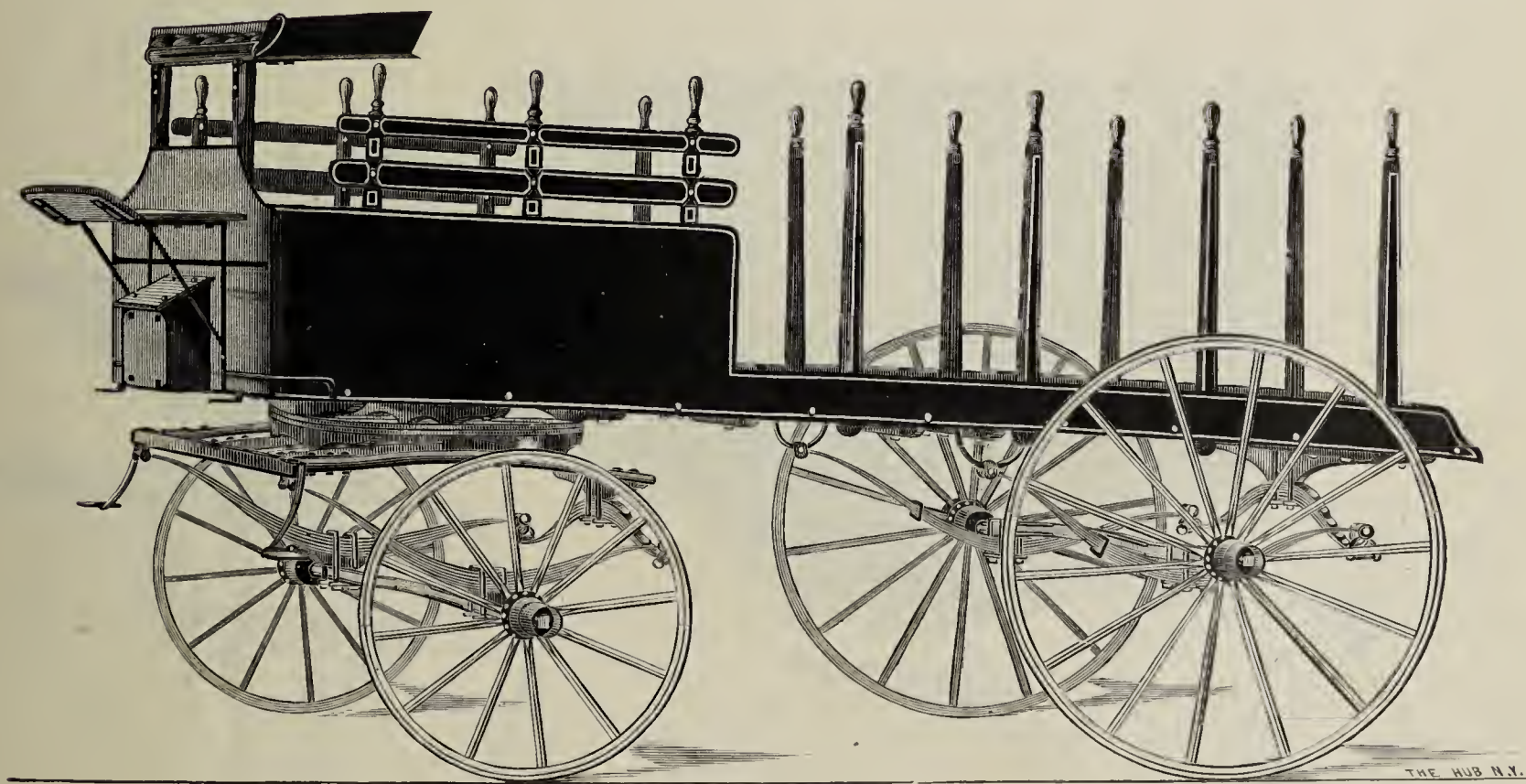


Plate No. 31. DETROIT PAIR-HORSE TRUCK.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 253.

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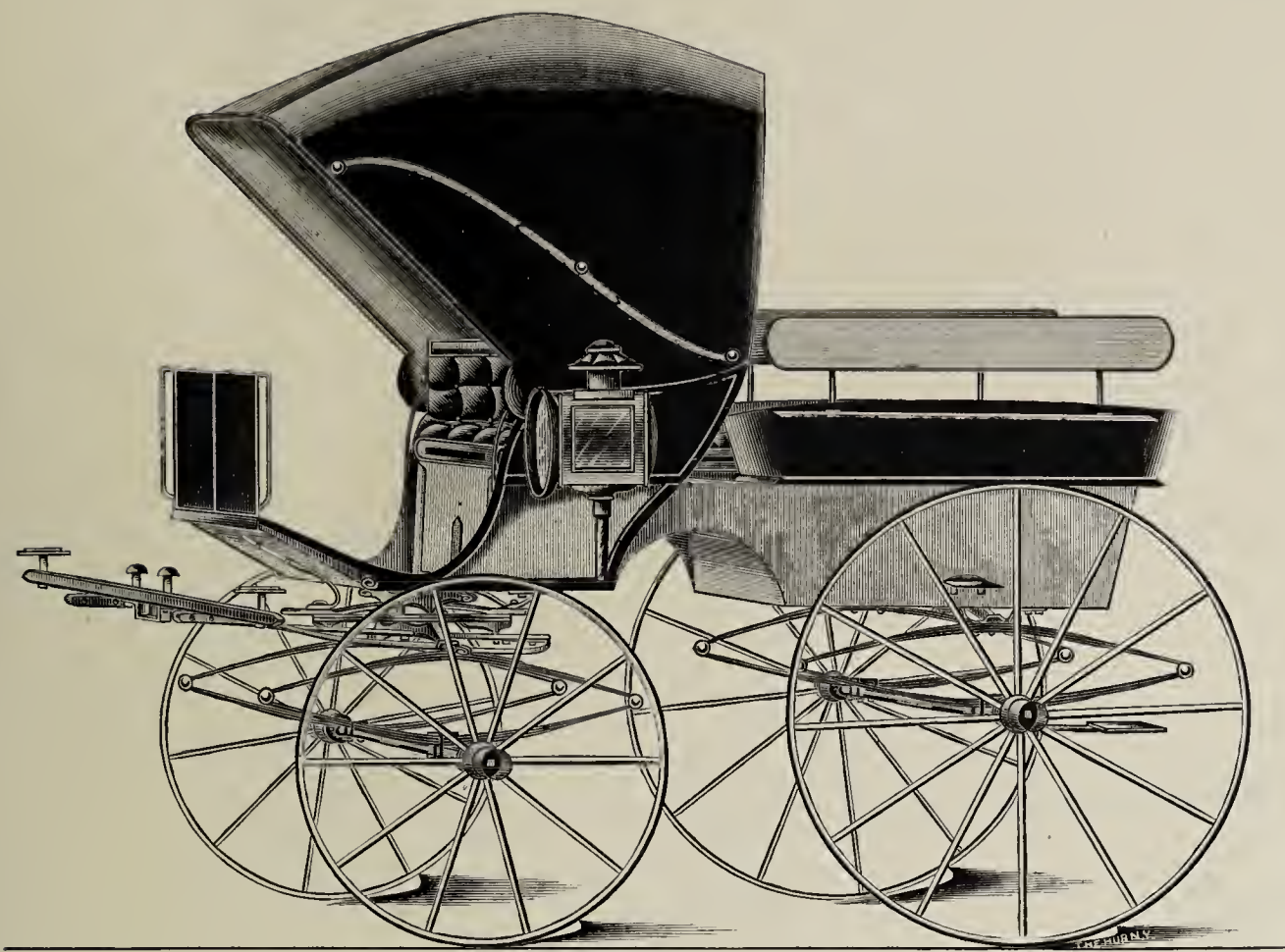


Plate No. 32. COMBINATION WAGONET AND T-CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 253.

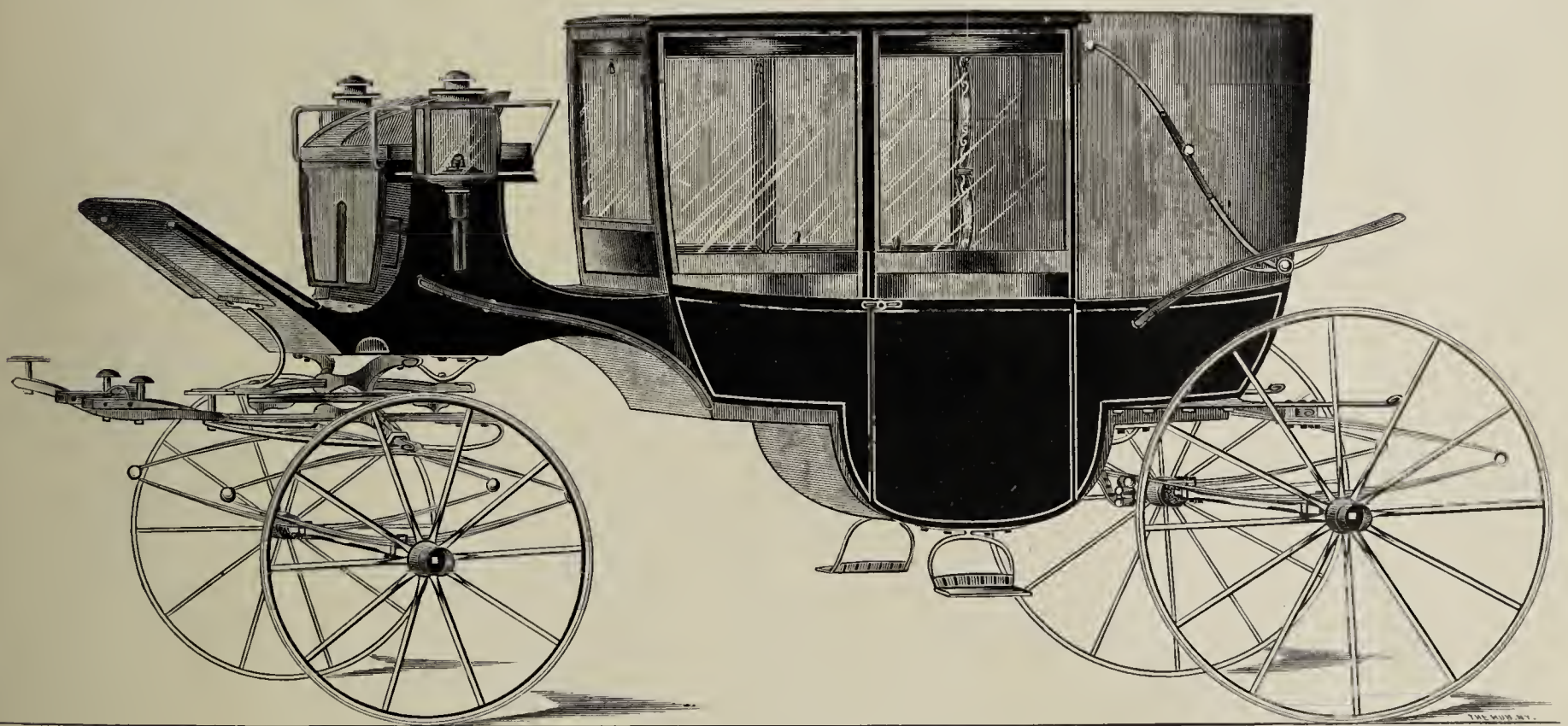
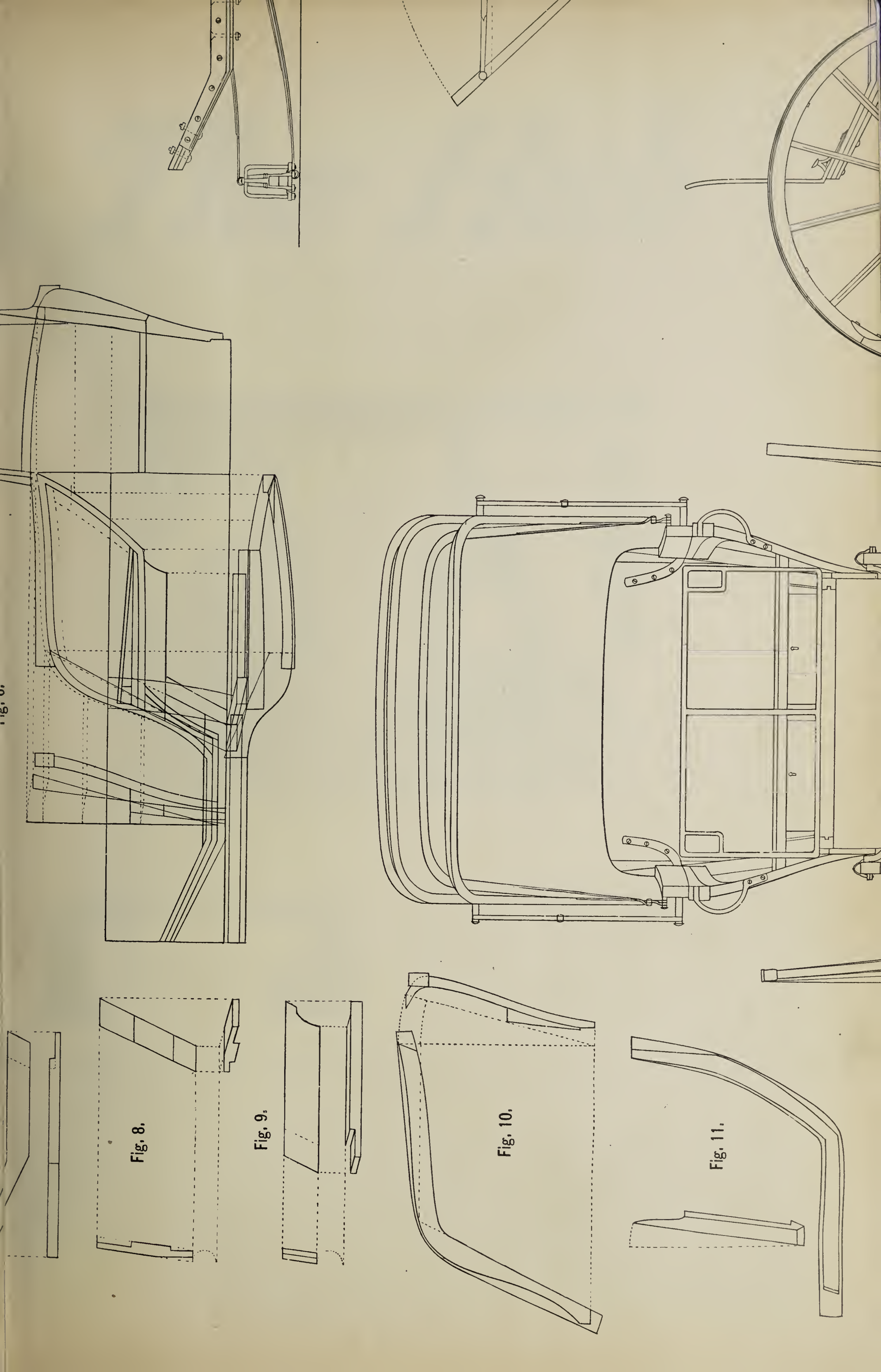


Plate No. 33. GLASS-FRONT LANDAU.—Scale one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 254.

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The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, JULY 1, 1884.

No. 4.



CUT OF A CUTTER—BY GRAY-PARKER.—Front and Rear Elevations.



DRAFT-ROOM.

DESCRIPTION OF BURNS'S SECOND-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

[Designed by Mr. James Burns, of 214 River-street, New-Haven, Conn.]

(See Illustrations on Loose Sheet accompanying this number.)

FIG. 1 shows the side elevation of the Physicians' Phaeton which I offer in competition for *The Hub's* prizes. This view shows the style of the body, which affords comfortable seat, leg and heel room, with high quarter and arm, intended both for comfort and good appearance. This view also shows the height from the ground, the body being hung conveniently low, so that the distance from a 9-inch curb to the step is only 10 inches, and there are 10 inches more over the rocker, making the body easy of access between the wheels, as shown.

The body is hung on side and bottom springs, which are similar to the Concord springs on the side, while the bottom springs run diagonally from the center of the front axle, and spread on the back axle, serving the purpose of a perch and stays, and avoiding the rattling and shivering

of the latter. They also help to support the body, in connection with stays running across and upward to the body and side-springs.

On this view are also shown the back loops, supporting the body under the bottomside and turning down on the wear-iron, which projects inside to support the loops. The back bottom loop is made solid with it, and all are held by the spring-bolt and clip-bolts, which also clip a neat block on the springs.

On this view are also shown the forms of the dash, toe-rail, handles, props, slat-irons, joints and bows. The dotted lines about the top mark the lines of the head-leather. This comes well down on the side, but not enough to interfere with the line of sight, being 30 inches from the pressed cushion; and it affords good head and hat room in the top. The side leathers are intended to take off, and go in a heel-pocket provided for them. This allows free outlook all around, without letting down the top in hot sunshine. The position of the bows when folded down is shown by dotted lines, although, to avoid confusion, the joints are shown in full lines.

Fig. 2 is a full view of the front. A half view would no doubt be sufficient, but many, not familiar with drawings, would probably prefer a full view, and so it is given. On this view are shown the width of the body, the bows, slat-irons and joints, the back props fastened on the back, the handles screwed on the arm-pillar, and also the front of the dash; while beyond can be seen two drawer-boxes under the seat.

On this view can also be seen the form of the step-shank, the front body-loops, crossing the lower springs and turning up to the body and side-springs; the spring-heads and shackles; the head-block, with 10 inches bearing on axle-bed; the kingbolt and arch-bolt to carry the lower spring-yoke, and the clips and shaft-shackles. On one side the wheel has the spokes of the side-view, and the other side shows the spokes dodged $\frac{1}{4}$ inch. A plumb line shows $\frac{3}{16}$ inch underset of spokes;

and another plumb line outside shows $1\frac{7}{8}$ inch swing of the wheel, with $\frac{1}{2}$ inch dish.

Fig. 3 is a full back view, and shows the moldings of the body, and the back loops, with offsets to take a bolt in the tail-bar and turn down on the lower springs. The back axle also is shown, with clips and spring-shackles; and the lower springs, arching diagonally toward the front axle, which is also shown. The wheels are shown as in the front view.

Fig. 4 is a half view, showing the top of the carriage-part and wheels. The front wheel is turned to strike the wear-iron, with the spoke line to clear the step.

Fig. 5 is a half bottom view of the carriage-part, wheels and body. On this view is shown the front wheel, turned as in Fig. 4, so that it will cut an arc on the ground, whose radius is 14 feet, requiring about 28 feet to turn around. This is better than side-bars or side-springs generally do, not allowing for the shaft or horse, as shown by the position of the shaft in the arc cut by the wheel.

Fig. 6 is the working draft of the body. The object here is to construct the body without showing joints, plugs or nail-heads. The last two conditions are entirely disposed of, and but few joints are left, and these are not of the kind that are likely to show. The details of this view are further defined in the figures which follow.

Fig. 7 is the bracket, as finished to the pattern; Fig. 8, the middle rocker; and Fig. 9, the back rocker, which three pieces make the rocker.

Fig. 10 is the arm-pillar pattern, marked on the bent piece. This figure also shows the front of the pillar when finished.

Fig. 11 is the bottomside pillar, marked on the bent piece, and also showing the back of the pillar.

Fig. 12 is a whitewood piece to fill the back of the pillar. It fits over the pillar and is recessed at the bottomside, thus avoiding joints.

Fig. 13 is the molding for the bracket, and covers the joint of the pillar. It is $\frac{5}{8}$ inch thick, and can be screwed from the inside, as are also the pillar and bottomside, thus avoiding plugs.

Fig. 14 shows how to groove and mold the tail-bar to receive the back-panel, and avoid nail-heads in the molding.

Fig. 15 is a center and inside view, showing the loops on the springs, the prop-irons inside the body, the rocker-plates, the seat with drawers underneath, the inside heel-board with pocket for parcels or side-leathers, the back shackle of the lower springs, the front lower spring-shackle with arch-bolt, king-bolt, and disc held by the king-bolt, which, with the arch-bolt, carries the lower springs. These details could be better shown by a drawing made to larger scale, but as a one-inch scale drawing is called for in the prize offer, I presume anything else would be out of order.

Figs. 16, 17 and 18 show how the bows may be framed. Bent bows can be used in front, but the back bow should be framed as shown.

Fig. 19 shows the whole length of the pole on the side; and if a straight line is taken from the shank, with the height of axle added on, the pole will be found to have the required "pitch up" in front.

Fig. 20 shows how the pole may be ironed, and also indicates the stays, bent-bar, evener-bar, and whiffletrees.

Fig. 21 is the top of a shaft, showing its form, width and length.

Fig. 22 is the side of the shaft, and, with the height of the axle considered, it will be found to "pitch up" in front sufficiently for a good-sized horse, say 15 hands high.

Fig. 23 shows the length and form of the neck-yoke for the pole.

Fig. 24 shows the springs with the weight of the body on, or about 120 lbs. A dotted line shows a deflection of $1\frac{1}{8}$ inch when the weight is increased by 160 lbs., making a total of 280 lbs. Taking the center of weight as shown, we find, by the first hypothesis, 120 lbs. in front, and 160 lbs. back, being one-third greater back than in front. The power of the springs being inversely proportionate to their length, and the front being 32 in., and the back being 23 in., we find the back fully one-third stronger than the front. We thus have the proportion $23 : 32 :: 120 : 166\frac{2}{3}$, or $32 : 166\frac{2}{3} :: 23 : 120$. If we put 150 lbs. more on, by this second hypothesis we find 180 lbs. in front and 250 lbs. back, with the same results. In each case the force is about one-third greater, and the resistance about one-third greater, on the back part of the springs.

(Signed) JAMES BURNS.

DESCRIPTION OF CONNOR FIRST-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

[Designed by Mr. W. R. Connor, Superintendent with the Studebaker Bros. Mfg. Co., South-Bend, Ind.]

(Continued from page 176.)

(See Illustrations on Loose Sheet accompanying the last number.)

By placing the loops on the bottom of the body, they would spoil the harmony of the design, as their bottom line would not be parallel with the lines of the body; but, by letting the irons into the sill, as shown in Fig. 2, all irregularity can be avoided, and it assists in lightening the appearance of the vehicle.

The step-shank can be welded to the loop-strap, if preferred; but, if the phaeton is intended for country use, it would be better to have it separate, as, next to the wheels, the steps receive the greatest use and wear, and consequently oftenest require repairs, which makes convenience in removing and replacing of great importance. It should also be remembered that, by having the straps and body-loops in one piece, it would be impossible to apply runners to the axles in winter, as, in turning a corner, the runner would strike the step, the result of which can easily be imagined.

Although the step and its shank is but a small part of the phaeton, too great stress cannot be laid on the fact that it is an important feature of the vehicle. It should also be borne in mind that the owner's life may depend upon its firmness, and, for this reason, it is necessary to have the shank and pad of ample proportions. The diameter of the pad in this design is 5 inches. It is of a new and handsome design, but can be bought from any dealer in carriage hardware, being the production of one of the best drop-forging concerns in the country. It would perhaps be better to apply the rubber-covered pad, as that prevents accidents, is softer to the foot than iron, and can more easily be kept looking neat.

The location of the step should be calculated with care, so that the occupant of the phaeton will not have to go through any unnecessary contortion of the ankle joint when descending from the vehicle.

Before leaving this description of the body and proceeding to the gearing, the writer would call attention to the new style of finish used for the molding ends. The old scroll or flat finish has been discarded, and in its place the rosette is applied, an enlarged drawing of which, Fig. 9, accompanies the design.

DESCRIPTION OF THE GEARING.

The principal feature of a gearing of this kind is the reach or perch. In a carriage that has to stand hard usage, the nearer the reach approaches a straight line in outline, the better it is for the carriage; yet due allowance must be made for the shape of the bottom of the body, as the shape of the reach must correspond with it in a measure, or else the design will not be properly carried out. It will be noticed that we are favored in this respect in the design before us, as the reach drops but $2\frac{1}{2}$ inches, while, in the regular phaeton, it is nearer 6 than 3 inches. The strongest part of the reach should be where the wing stays connect. From this point it tapers in a straight line from the heel of the stay, $\frac{1}{8}$ inch, to the shoulder of the tenon at the head-block; while back of the wing-stay it should taper in a curved line, $\frac{1}{4}$ inch, to the tenon at the back bed.

The bed pieces for the axles should be taken from bent stock, the virtues of which need no explanation from me at this late day.

The slot fifth-wheel has been applied to this design, and the bolt that holds the rubber and the fifth-wheel in position is the only one that passes through the reach, all other connections with the bottom plate being effected by clips, the ties of which are made solid with the plate.

The drawings of the shafts, Fig. 11, are complete enough to need no detailed explanation; but, in connection with this, I will repeat with emphasis what Mr. Shepard recently expressed before the Technical School in New-York, to the effect that "the timber does not grow that is too good for a gearing."

In the beginning of this description, the writer stated that the design was equally adapted to the requirements of builders having the less fortunate members of the medical profession as customers, as well as to those catering to the wants of the well-to-do, and an application of both methods was promised. I will now endeavor to fulfill this promise.

HOW TO BUILD A FIRST-CLASS PHYSICIANS' PHAETON FOR CITY USE.

I will begin by describing the phaeton to be built for use in the city, and intended for a physician who requires the best that can be made.

As a starting point, the design should be reproduced in full size on the blackboard. The writer has exercised great pains to observe the greatest accuracy in making his drawings to the scale of 1 inch to the foot, and it will therefore be an easy task for the draftsman having the proper degree of patience and skill, to do this; and after the complete drawing has thus been made, the next things to be attended to are the working drawings of the body, the patterns, etc.

The bottom sill or rocker should be in one piece from front to back, and should be made from solid, close-grained ash, thick enough to permit the molding at the front, over which the foot has to pass, to be made solid with the rocker. The bracket piece that frames on to the rocker must also have the molding worked on.

The front pillar is sawed from the plank, and extends from the arm-rail on top to a point 2 inches in front of the point of separation of the bottom moldings. The front end of the pillar can be got out separately, and be glued to the main pillar with a long splice joint.

The back pillar should be bent, the straight piece being cut from strong straight-grained ash. The arm-rail can be sawed from the plank. The bottomside and center rail are straight, and can be selected from the

usual stock for this kind of work. The panels can be $\frac{5}{16}$ inch thick, and planed down to $\frac{1}{4}$ inch where they enter the grooves.

Great care must be taken by the body-maker to correctly prick off from the drawing the proper forms of the pillars, arm-rails, etc.; otherwise, what should be a graceful and well-formed body, may very easily be spoiled. The back part of the body can be framed up and paneled in the usual manner, and an excellent way to finish the top panel is to cover it with enameled leather, turn this down over the edge, and fasten it with tacks; and then cover the latter with a $\frac{3}{8}$ inch metal molding. The leather finish is superior to painting on this panel, for the reason that it does not scratch when cleaned; and, when covered with dust, it offers no temptations to the autograph fiend.

Two upright pillars can be framed to the back bottom sill and back top rail, at equal distances from the center (see Fig. 1); and light slats are let into them to form the blinds.

PRINCIPAL DIMENSIONS OF THE GEARING.

The principal dimensions of the gearing, as shown in Fig. 2, are the following: Axles, $1\frac{1}{8} \times 6\frac{1}{2}$ in., steel, with double collar, wrought boxes, hexagon nuts with button head finish, fantailed 24 in. from the collar to $1\frac{3}{8} \times \frac{7}{8}$ in.

Front springs, elliptic, with English heads, $1\frac{3}{8}$ in., four plates, 35 in. long, from center to center of the eyes. Sizes of plates: first plate, No. 2; second plate, No. 3; third plate, No. 3; and fourth plate, No. 4, all of Swedes steel, with 9 in. spread from outside to outside. There are no bolt holes. The center hole in the bottom half is $\frac{5}{16}$ in. These springs have oval points, and are oil tempered and polished.

Back springs, elliptic, with English heads, $1\frac{1}{2}$ in.; four plates, 36 inches long from center to center of eyes. Sizes of plates: First plate, No. 2; second plate, No. 2; third plate, No. 3; and fourth plate, No. 3, all of Swedes steel, with 10 inches spread from outside to outside; no bolt holes; oil tempered and polished oval points.

Wheels: 3 ft. 4 in., and 3 ft. 10 in. high, without tire. Hubs, $4 \times 6\frac{1}{2}$ in., beaded as shown in drawing. Front bands, $2\frac{7}{8} \times 1\frac{3}{4}$ in., with silver inside. Back bands, $3\frac{1}{4} \times \frac{3}{4}$ in.

Spokes, 12 and 14, $1\frac{3}{16}$ in. at the shoulder, with $\frac{1}{4}$ in. dodge, and driven with $\frac{1}{16}$ in. dish. Rims, $1\frac{3}{16}$ in., rounded. Tire, $1 \times \frac{1}{4}$ in.

DESCRIPTION OF FINISH.

Painting: Body, black, and moldings green, striped with a fine line of vermilion, and glazed with carmine. Gearing, black or green, with a broad stripe and a distanced fine line on each side, and with the entire space from outside to outside of the fine lines glazed with carmine.

Trimming: Cushion, fall, and back and side quarters, green morocco; and green cloth for head-lining, sides, top quarters and back. In order to make the side top quarters more serviceable, it would be well to put morocco in them, high enough up to meet the point where the round of the back joins the quarter. The cushion should have a broad-lace front, and lace welts squabbed, and morocco-covered buttons. Fall, plaited, with broad-lace edging.

The top is made with four bows, and with little padding. Heavy straight-grained leather should be used, with a silver molding on the bottom edges. The side-lights are of beveled-edge French-plate glass, and the back light is of the same. The back curtain is movable, and attached by French fasteners. Carpet, green, without figures, and bound with seaming-lace.

It is almost necessary to supply for this vehicle a rubber mat, fitted nicely to the bottom, that can be used in wet and muddy weather, when the carpet mat should be removed. The dash is covered with grain leather, and the handles are corded and covered with bow leather. The handles on the body are finished the same as on the dash. This vehicle should also be supplied with an extra set of axle washers, an extra set of rubber anti-rattlers for the shafts, a tin-plated wrench, and a dash-lamp.

HOW TO CHEAPEN THE JOB ABOVE DESCRIBED.

Referring now to the less expensive job which I have alluded to, adapted for the country, or for city physicians of moderate income, this phaeton can be made lighter and less expensive in the following way:

The body can be made with sides similar to those of a Corning Buggy, with $\frac{3}{4}$ in. flare on each side. The seat can be made separate, with the sides and back glued and screwed to the outside of the frame; and, after the seat is put in its proper place, an imitation pillar of whitewood can be glued on to the body at the front and back of the seat. These can be given the proper shape, and the moldings can be worked on. The rest of the moldings can be glued and nailed on. By this method the seat will project over the sides of the body, but the design can still be made to look very attractive.

In order to reduce the expense of the gearing, the bent reach can be made straight instead of tapering, and a plain 14-inch circle can be used, and bolts instead of clips. In the next place, axles, $1 \times 6\frac{1}{2}$ in., steel, half-patent, can be used, with cast boxes; and springs of American steel, of the same dimensions named in the previous description. The wheels,

also, can be of a grade lower in quality than the ones named, with dimensions as follows: 3 ft. 4 in. and 3 ft. 10 in. high; hubs, $3\frac{7}{8} \times 6\frac{1}{2}$ in.; front bands, $2\frac{3}{4} \times 1\frac{3}{4}$ in.; back bands, $3\frac{1}{8}$ in.; 12 and 14 spokes, $1\frac{1}{8}$ in. at shoulder, dodge, $\frac{1}{4}$ in., and driven with $\frac{1}{16}$ in. dish; rims, $1\frac{1}{8}$ in., rounded; and tire, $\frac{1}{8} \times \frac{1}{4}$ in., round-edge steel.

The cost of the finish may also be reduced, as follows: Paint the body black all over, with single fine lines of yellow on the moldings; and the gearing black, striped with two lines of yellow. Trim with green leather and cloth, with cloth facings and welts for the cushion, and plain green carpet, bound with green leather. For the top, use No. 1 hand-buffed leather, and a stationary back-curtain, with plain back light. Cover the dash with split dash leather on the inside, and grain dash leather on the outside; and cover the handles with plain green leather.

In conclusion, the writer begs to say that if there is anything in the drawing or description that has been omitted, or that is not sufficiently clear to those to whom they will be finally submitted, he will at any time be ready and happy to answer any questions that may be addressed to him, either directly or through *The Hub*.

Respectfully submitted.

(Signed) W. R. CONNOR.

DESCRIPTIONS OF FASHION PLATES.

CABRIOLET SLEIGH: NEW-YORK PATTERN.

(See Colored Plate No. XLII.)

AMONG present styles of fashionable conveyances on runners, the curved-body Cabriolet Sleigh occupies a leading position. The beauty of such a sleigh of course depends in a great measure upon the design and execution of the hind quarter. The bottom sweep should be made full, to give the quarter the depth necessary for an aristocratic appearance.

The bottomsides are of bent wood, and can be made considerably lighter than if intended for a carriage body, as they do not have to stand such a strain, and no calculations need be made in the thickness of the bottomside for placing the back body-loops. The rockers are made in the usual way, and consist of three pieces. The front or boot-pillars are lapped to the rocker, and are finished as per drawing. A molding is worked on, leaving $\frac{1}{2}$ in. margin. A panel is put into a groove about $\frac{5}{8}$ in. from the outside. The rockers at this place should be left somewhat heavier, in consequence of the working on of a rabbet. The outside does not show more than the molding and margin, as the drawing illustrates. To make this portion more attractive, the sunken panel should be painted in the same color as the panel at the back quarter. Solid sides are used for the back quarters. To avoid unnecessary work, we would recommend framing an upright into the rocker where the middle pillar is located, even with the back face of the same, together with a horizontal piece lapped to this upright, and mortised or lapped into the bottomside. The middle pillar is then glued to this, and has a shoulder at the bottom of the side quarter, half the thickness of the side panels. The sides are lapped to this middle pillar, and are fitted to the corner-pillar, forming a miter joint at the latter. The moldings are then all worked on, and rounded over on the outside. The ironwork is plain, but will look well. The body is connected by stays to the runners in front at the bottom, and by a plate on top.

Dimensions.—Width of body on top at the middle-pillar, 46 in.; ditto back, $38\frac{1}{2}$ in.; and at dash, 32 in. Turn-under, $5\frac{1}{2}$ in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. The runners are $1 \times 1\frac{1}{8}$ in. Side-stays, $\frac{3}{4} \times \frac{1}{2}$ in., oval. Cross-stays, $\frac{7}{8} \times \frac{9}{16}$ in. Shoes for the runners, $1 \times \frac{3}{8}$ in. Track, 40 in., from out to out.

Finish.—Painting of the body-panels, blue; and moldings, black, striped with a fine line of light blue. Running-part, light blue, or English patent yellow. In the first case, the running-part may be striped with two heavy round lines of gold; or, in the latter case, with two heavy round lines of black. Trimming, either blue cloth or plush. The back is laid off in pipes, while squares are used for the cushion top. Carpet, blue; plumes, blue. Mountings, brass.

NEW-YORK CUTTER, WITH OGEE BACK.

(See Fashion Plate No. 26.)

THE Cutter occupies a position among sleighs similar to that of the buggy among wheeled vehicles, one of its chief requisites being combined lightness and strength, and, to attain these two conditions, good material and workmanship are both necessary.

The two principal styles of Cutters are the Portland and Albany, the first-named having straight sides, and the latter swelled sides. The back of the Portland Cutter may be flared, but is straight in the majority of cases. We noticed, last winter, a noteworthy departure from this style in a cutter built by Mr. R. M. Stivers, of this city, wherein the back of

the body was slightly inclined to the ogee pattern, being straight at the bottom crosswise, but gradually curving out toward the top edge, until it there formed a full round corner. Both wood and ironwork were extremely light and graceful, and the painting was remarkably attractive, the color of the body being a rich blue, and the runners carmine, striped with gold.

Our present Fashion Plate shows several variations from the usual styles of cutters. The back corner-pillar is of the ogee shape, or rather a combination of a round and C-pillar, the pillar forming a sharp corner at the center molding of the sides. The bottom sill is made of one piece from the dash to the back end. A light plate is fastened to the inside of the sill near the bracket. The ogee pillar should be made of bent wood if possible, and framed into the sill. The center-pillar is also made of one piece, and is also framed into the sill. The sides are made of thick whitewood, halved over the middle pillars, and mitered to the back corner-pillar; and the moldings are then worked on. No cross-bar is needed at the back, as the sills are bolted to the bench; but it will be advisable to fasten a plate to the sill and corner-pillar. If the corner-pillar is of bent wood, $1\frac{1}{4}$ in. on the inside will be of sufficient thickness, and it can then be lightened to the outside to $\frac{7}{8}$ in. The sills are $1\frac{1}{4}$ in. thick, and $1\frac{1}{2}$ in. wide. They are also lightened to the outside to $\frac{7}{8}$ in. The moldings are $\frac{5}{8}$ in. wide, and this will leave a margin of $\frac{1}{4}$ in. on the pillar and sill. The panel on the back is put into a groove all around. The pillars, top rail and center rail of the back are put together at once, and are then put into the sill. The moldings are left moderately wide,—say about $1\frac{1}{2}$ in. The side moldings on the back can either form a corner with the back rail, or have a continuous sweep. The bottom-boards are not more than $\frac{3}{8}$ in. thick, and have two straps equally divided, to give them more strength. The runners and other wooden parts of the gearing are extremely light, but strengthened securely with iron.

Dimensions.—Width of body on top in center, 38 in.; ditto at back, 35 in.; and at front, 31 in. Turn-under, 4 in., concavo-convex shape. The runners are $\frac{3}{4}$ in. square. The uprights of the benches are $\frac{11}{16}$ in. thick, $\frac{3}{4}$ in. wide at the bottom, and $\frac{7}{8}$ in. at the top. The cross-bars of the benches are $\frac{11}{16}$ in. thick, and 1 in. deep. All wooden pieces belonging to the running-part of this sleigh are made of the best hickory. The iron stays for the sides are made of $\frac{7}{16}$ in. round iron, and the cross-stays are of $\frac{3}{8}$ in. round iron. The uprights of the benches are plated on the inside, forming a T at the runners. The shoes are $\frac{3}{4} \times \frac{1}{4}$ in. steel.

Finish.—Painting of the body-panels, light blue; and moldings black, striped with a fine line of gold. Running-part, rich carmine, striped with two medium lines of gold at a distance, and a fine line of black between the two lines. Trimming, blue velvet plush. The back can be laid off in either buscuits or pipes. The cushion top is laid off in biscuits. A 1-inch raiser goes around the outer edge of the fall, being made of the same material as the rest of the trimming. Carpet, plain blue; plumes, blue. Mountings, brass.

CABRIOLET SLEIGH, WITH OGEE BACK.

(See Fashion Plate No. 27.)

FOR the past ten years the demand for fine sleighs has been rapidly increasing in the larger cities, and improvements in style and finish have kept pace with the demand. New designs have been originated each season; and while some of these have not proved altogether satisfactory, and therefore have only a short existence, others have been more favorably received, and are now standard patterns. The tide of fashion at present seems to be drifting in the direction of greater display of carved work on sleighs, and work now in progress authorizes us to look for the appearance of specially elaborate turnouts during the coming winter.

On the accompanying Fashion Plate we have adopted the ogee pillar for the back, terminating in a scroll. The rockers on the body can be made of one piece as far as the toe-board bracket. The bracket would become too cross-grained if the rocker were continued to the dash; and, being light, it would be likely to split when fastening the plate. The rocker terminates at the middle pillar. The bottom sill is made wide enough to be even with the inside of the rocker, and projects over on the outside of the rocker $1\frac{1}{2}$ inch. The middle pillar reaches from the bottom of the sill to the top of the panel, and is framed into the bottomside. The sides of the hind quarter are made of thick whitewood, and are halved on to the middle pillar, thus making the middle pillar even with the inner surface of the sides. The back corner-pillars are made of bent wood, and are framed into the bottomside. The corner-pillars are $1\frac{1}{2}$ in. thick at the open or bottom section of the body. The sill is lightened on the inside from the middle pillar, to the thickness of the corner-pillar at the back end. A cross-bar is framed into the sills. The rocker-plate extends to the cross-bar, and forms an angle long enough for the introduction of three screws. To make a neat job, the plate in the open

space is made half round and let into the cross-bar, which is also rounded off on both the inside and outside. The moldings on the back are $1\frac{1}{2}$ in. wide, and rounded over. The moldings on the sides, middle pillar and bottom sill are worked on. The continued molding from the sill to the driver's-seat is glued on. The front seat is made with solid sides and back, but can be changed, if preferred, to a stick seat, or a regular coach seat, having iron rails only.

The wooden runners are fastened to the bottom of the body in front, and a stay extends from the runner to the front of the toe-board, making a nice finish. The dash is made of wood, and is held in position by iron plates bolted to the body. A wooden bench supports the body in the center, which, however, is not absolutely necessary, and can be dispensed with if preferred. In the absence of a wooden bench an iron cross-bar is required, to be bolted under the body, forming a T at the runners, and fastened there by two bolts.

Dimensions.—Width of body at the top of middle pillar, 45 in.; ditto on the back at the arm-rail, 38 in.; ditto at the back cross-bar, 35 in.; and at the dash, 32 in. Turn-under, 5 in. Rocker-plate, $2 \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws.

Finish.—Painting of seat panels and center panel of dash, dark green; and moldings and boot panel, black. The moldings are striped with a fine line of gold. Running-part, green, several shades lighter than the body, and striped with two round lines of gold at a distance, and a medium line of black. Trimming, green cloth throughout. The back on the hind seat has a roll on top. The rest of the back, and the cushion tops, are laid off in large buscuits. Carpet, green, with black figures. Plumes, yellow. Mountings, brass.

CABRIOLET SLEIGH, WITH DOORS.

(See Fashion Plate No. 28.)

CABRIOLET SLEIGHS, in a variety of forms, are now manufactured in considerable numbers by firms making a specialty of the finer grades of sleighs, and it is noticeable that each succeeding season shows the development of greater refinement in outlines, painting, trimming and general finish. There is also a growing tendency to introduce elaborately carved work on sleighs, but we believe this departure is hardly likely to become general, as it materially increases the cost, and can therefore be indulged in by comparatively few.

In the accompanying Fashion Plate we have introduced a door which will give the sleigh body a more compact appearance than usual, and which will also add greatly to the comfort of the occupants, affording a better protection for the feet than has been customary in vehicles of this class. The rockers are similar in construction to those used on a carriage body, and are $1\frac{1}{2}$ in. thick, and wide enough to allow of a 2-inch rocker-plate. The sides of the back quarters are made solid, and the moldings are worked on. The turn-under is of a concavo-convex shape. Whitewood, $1\frac{1}{2}$ in., will answer for the sides of the back quarter, if the vertical rocker, or the rocker connecting the door with the back rocker, is inclined; and the back rocker is contracted nearly as much as the side swell of the body.

To render more prominent that part of the body extending from the front of the door to the back, as distinguished from the boot, a piece of whitewood is glued to the outside of the rocker; and a piece of ash, $1\frac{1}{8}$ in. wide and $\frac{3}{4}$ in. thick, is let in on the edge facing the door, to afford more strength and hold for the screws fastening the hinges. The door itself is very light, and is made of a piece of whitewood thick enough to allow of working on the side swell and turn-under. A pillar is glued back and front to the inside of the door, for securing the locks and hinges. The moldings, with the exception of the top molding on the door, are all worked on. The bottom of the door reaches to the bottom molding of the body.

The runners, as will be seen on the drawing, are secured to the bottom of the front rocker near the dash. This arrangement will permit of making the runners considerably shorter than usual, which is especially desirable for six-passenger sleighs, but the same idea can also be utilized on four-passenger sleighs.

The ironwork is made as plain as possible. No wooden bench is used on this sleigh, but an iron cross-stay is applied as a substitute, and is fastened to the inside of the runners by two bolts, the stays forming a T.

Dimensions.—Width of body at the middle pillar on the arm-rail, 46 in.; ditto at the back, 37 in.; and at the dash, 32 in. Turn-under, 5 in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. The runners are $1 \times 1\frac{1}{8}$ in. The shoes are $1 \times \frac{5}{16}$ in., steel. The side-stays are $\frac{1}{2} \times \frac{3}{4}$ in., oval. Track, $39\frac{1}{2}$ in., from out to out.

Finish.—Hind quarters and door-panels, dark green; and moldings and boot, black. The moldings may be striped with a fine line of gold. Runners, green, somewhat lighter than the body color, striped with two round lines of gold at a distance. Trimming, green cloth throughout. The back and cushion top are laid off in biscuits. Carpet, green, without figures. Plumes, red. Mountings, silver.

FOUR-PASSENGER PORTLAND SLEIGH.

(See Fashion Plate No. 29.)

FOUR-PASSENGER Portland Sleighs do not allow of great variety in outlines, but several minor changes will be noticed on this design, when compared with those previously published, including that presented in our August number of last year. The seats on our last year's design, above alluded to, were considerably curved at the corner formed by the front and top face of the seats; while, in this present design, we have curved them only a trifle, or just enough to relieve the sharp corner, this change being the result of a suggestion made to us by a practical and fashionable sleigh-builder of this vicinity, who, while admitting that the round seat gives a neater appearance, and does not interfere with the comfort of occupants of a carriage, explains that the conditions are otherwise in the case of a sleigh. "Sleighs," he remarks, "being used only in cold weather, it is essential for those indulging in a sleigh ride to be covered as warmly as possible; and in this respect the seat with a round front end is objectionable, not allowing the lap robe to be fastened as nicely as on a seat with a square-cornered front." It is a fact that sleigh dealers who last year bought sleighs with the front ends of the seats rounded, have been led to discard them, apparently at the suggestion and demand of their customers.

The sills of such sleigh bodies are now in every instance made of bent wood, either hickory or oak. For the front scroll, a piece of the proper size is spliced to the sill. To relieve the body of extreme plainness, moldings are fastened around the edges of the body. To emphasize the upper section on the hind part of the sleigh representing the seat, we would advise making the panel in two pieces. The lower panel is $\frac{1}{2}$ in. The upper panel forms a recess, setting in about $\frac{5}{16}$ in. from the outside of the bottom panel. At the back, the panel is grooved into the corner-pillar; and, at the front, it is glued over the upright. The moldings at these places are left heavier, and lapped over the panel to fill up the space resulting from the recess formed by the upper panel. To render the front seat and this recess panel still more prominent, they may be painted of a color contrasting with that of the body. The running-part is made as light as possible. The uprights on the trestles can be made either straight, or in a concavo-convex shape on the outside.

Dimensions.—Width of body on top at the hind seat, 40 in., and at the bottom, 32 in., from out to out. Width of body on top, at the front seat, 34 in. Width of front seat at the bottom, $34\frac{1}{2}$ in., and at the top, $38\frac{1}{2}$ in. The seat-frame projects outside of the seat-sides, $\frac{3}{4}$ in. The runners are $\frac{7}{8} \times 1$ in. The uprights for the benches are $1\frac{3}{8}$ in. thick, by $\frac{7}{8}$ in. wide at the bottom, and $1\frac{1}{8}$ in. on top. The cross-pieces are $1\frac{3}{8}$ in. thick, by $1\frac{1}{4}$ in. deep, and all made of hickory. The shoes are $\frac{7}{8} \times \frac{5}{8}$ in., steel. The side-stays are made of $\frac{1}{2}$ in., and the cross-stays of $\frac{7}{16}$ in. round iron. Track, 40 in., from out to out.

Finish.—Painting of the body and moldings, black; and seats, dark green. The moldings are edged with a fine line of carmine. Runners, deep carmine, striped with two stout lines of black at a distance, and a medium line of gold in the center. Trimming, green cloth throughout. The backs and cushions are laid off in squares. Carpet, in color to match the cloth. Plumes, red. Mountings, silver.

SQUARE-BOX BUGGY, ON ELLIPTIC SPRINGS.

(See Fashion Plate No. 30.)

SQUARE-BOX BUGGIES hung on end or elliptic springs are rather the exception than the rule, as only a few are found in the repositories of the leading manufacturers. Recent improvements in side suspension have aided materially in giving the Side-bar Wagon its present popularity; and another important factor is that the body of a Side-bar Wagon can be hung considerably lower than when elliptic springs are used, which is especially desirable on a square-box Buggy. But notwithstanding these advantages of side-bar suspension, elliptic springs are still preferred by some customers, who claim that they possess easier-riding qualities; and, as at present constructed, the high suspension of a Square-box Buggy, hung on elliptic springs, is partly overcome by making the body-loops reach up further than formerly. While we do not admire the appearance of body-loops thus elevated, they fulfill the purpose aimed at; and we cannot dispute the easy-riding qualities of elliptic springs.

The body represented in the accompanying Fashion Plate differs very little from others previously published, but the various parts of both the body and gearing are made as light as possible. For instance, the sills are $1\frac{1}{8} \times 1\frac{5}{8}$ in.; the cross-bars, $1\frac{1}{8} \times 1\frac{1}{2}$ in.; and the sills and cross-bars are tapered from the panel to the inside $\frac{1}{8}$ in., to allow the water to flow off when washing. The uprights are $1\frac{1}{8}$ in. thick, and $\frac{5}{8}$ in. wide at the bottom, by $1\frac{3}{8}$ in. on top, and rounded to the inside to an oval shape. The panels are lightened to $\frac{1}{4}$ in. on top, and have corner-plates. The seat-sides are $\frac{3}{8}$ in. at the bottom, and $\frac{1}{2}$ in. on top; and after the seat

is fitted, and the corner-blocks glued in, the seat is then lightened to $\frac{3}{8}$ in. on top. The seat-frame is $\frac{9}{16}$ in., and rabbeted down $\frac{1}{8}$ in. on the outside edge, forming a shoulder for the seat-panels. This also lightens the molding to $\frac{7}{16}$ in. The uprights on the body are not lapped, but framed into the bottom sill.

Dimensions.—Width of body on top, 23 in., and at bottom, $22\frac{3}{8}$ in. Width of seat at top, 32 in., and at bottom, 26 in. Height of wheels, front, 3 ft. 9 in., and hind, 4 ft., without the tire. Depth of rims, 5 in. Size of spokes, $1\frac{5}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{1}{4}$ in. diameter. Front bands $2\frac{1}{4}$ in., and back, $3\frac{5}{8}$ in. diameter. Length of front bands, $1\frac{5}{8}$ in. Length of hubs, 6 in. Tire, $\frac{3}{4} \times \frac{1}{8}$ in.

The front spring is elliptic, 35 in. long, from out to out, with 7 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, namely: the first two No. 3, and the last No. 4 steel. Holes apart on the top half, 3 in. Size of holes, $\frac{1}{4}$ in. The hind spring is elliptic, 36 in. long, from out to out, with $7\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, all No. 3 steel. Holes apart on the top half, 3 in. Size of holes, $\frac{1}{4}$ in. Axles, $\frac{3}{4}$ in., steel. Track, 4 ft., from out to out.

Finish.—Painting of the body, black; and gearing, blue (not too dark), striped with two hair lines of light blue. Trimming, blue cloth. Carpet, blue. Mountings, silver.

DETROIT PAIR-HORSE TRUCK.

(See Fashion Plate No. 31.)

WE again have the pleasure of making public a design originated by Messrs. E. Chope & Sons, of Detroit, Mich., representing one of their medium-size pair-horse Trucks.

As the drawing shows, it is strong and substantial in construction. On the bottom frame the four sills are ironed with heavy band-iron, both top and bottom. The side-boards are 4 ft. $\frac{7}{8}$ in. high, and ironed on top with 1-inch half-round iron. This iron is fastened to the side-boards by $\frac{3}{8}$ in. bolts, and the side-boards are fastened to the sills by $\frac{3}{8}$ in. bolts. The raised part in front of the sign-board is fastened to the standards by bolts. The width of the slats above the sign-board is, for the top one, $2\frac{1}{2}$ in., and for the bottom one, 3 in. The seat is hinged to the two middle posts in front, and is turned over when the Truck is loaded, resting then upon the foot-board. The box in front of the Truck is intended for the safe keeping of wrenches and other articles. The rungs have turned heads, which add greatly to the appearance of the job.

Dimensions.—Width of body, 3 ft. 10 in., from out to out. The sills on the outside are $1\frac{7}{8}$ in. thick, by $4\frac{1}{2}$ in. wide. The two middle sills are $1\frac{7}{8}$ in. thick, by 3 in. wide. Height of front wheels, 2 ft. 8 in.; and hind, 3 ft. 8 in., without the tire; these are of the Sarven patent. Depth of rims, $2\frac{1}{4}$ in. Size of spokes, $1\frac{5}{8}$ in. Length of hubs, $9\frac{1}{2}$ in. Tire, $1\frac{3}{4} \times \frac{5}{8}$ in.

The front springs are platform. The side-springs are 40 in. long, from out to out, with 6 in. set on the inside. Width of steel, $2\frac{1}{4}$ in. Number of plates, nine, namely: the first four No. 2, the next three No. 3, and the last two No. 4 steel. The front cross-spring is 39 in. long, from out to out, with 5 in. set on the inside. Width of steel, $2\frac{1}{4}$ in. Number of plates, nine, namely: the first four No. 2, the next four No. 3, and the last one No. 4 steel.

The hind springs are platform. The side-springs are 40 in. long, with 6 in. set on the inside. Width of steel, $2\frac{1}{4}$ in. Number of plates, ten, namely: the first five, No. 2, the next four No. 4, and the last No. 4 steel. The cross-spring is 39 in. long, from out to out, with 5 in. set on the inside. Width of steel, $2\frac{1}{4}$ in. Number of plates, ten, namely: the first six No. 2, and the other four No. 3 steel. Axles, $1\frac{3}{4}$ in., octagon center. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, Portland amber, striped black, and edged with King's yellow. Gearing, carmine, striped with black.

COMBINED WAGONET AND T-CART.

(See Fashion Plate No. 32.)

THE Wagonet represented in this Fashion Plate is of recent introduction, and possesses the advantage that it can be changed into a T-cart by merely placing one of the side seats across the body at the hind end. If desired, the top also can be made to shift, but this would of course cause additional expense in construction.

To make the front seat prominent, it should project 3 in. over the sides of the body on top in front, and it is then swept off, at the back of the seat, to $1\frac{1}{4}$ in., and from there to the bottom of the body to $\frac{1}{2}$ in. The corner-pillar is of bent wood, and should not be less than $2\frac{1}{2}$ in. The pillar is fitted against the body, and lapped over at the top-rail, having a short tenon mortised into the top-rail of the body. The bottom end of the pillar is lapped to the piece of ash forming the bottomside, extending

from the dash to the corner-pillar. The middle pillar is made of one piece, and, like the corner-pillar, is fitted against the side panel. An upright is framed on each side, 1 in. from the front of the body. The seat-rail is framed to these uprights.

The sides of the seat can be framed, paneled and cleaned off, and may then be glued to the body. The best way, we think, is to proceed in the following manner: After the sides have been cleaned off, glue on one side first; then put the bottom rail and top rail of the seat in their places, and fasten the side temporarily to the body by a few clamps, and mark off the back panel. Then, after the back panel is fitted, the other side lower rail and back panel may be glued to the body at once. The top rail of the seat is glued to the body last. We would add that the back panel is put in the groove all around; but, if preferred, the back panel can be glued and nailed to the bottom bar, and the molding is then glued and nailed to the panel.

To facilitate entrance and exit an additional step is applied, in case the vehicle is used as a Wagonet, which, when not in use, may be folded under the bottom of the body.

The rear seats, as represented, are made solid; but this is optional with the manufacturer, and stick seats or iron-rail seats may be substituted.

To allow the top to be shifted, pieces of whitewood are fitted to the top of the seat on the sides and back, of the necessary height from the top of the seat-board,—say about 12 in. Irons are then made, similar to the top irons of a buggy, one on each side and two for the back, which project over the sides far enough to allow fastening by a nut. A $\frac{5}{16}$ in. hole is then drilled through the projecting parts of these irons. Plates are then made and swaged down on one end to full $\frac{5}{16}$ in., and a thread is cut for the reception of a nut. These plates are let into the whitewood fitted to the top of the seat, at points exactly corresponding with the seat-irons. The pieces of whitewood, or seat-blockings, are so framed together that, when required, the whole can be lifted off together.

The trimming of such a job must be arranged in such a manner that the figures, whatever the style may be, will make proper divisions. Seaming-lace is fastened around the edges of the joints. Plain trimming is most appropriate; but large and elaborate lamps, finely plated, will add greatly to the stylish appearance of the job.

Dimensions.—Width of body on top, 34 in.; and at bottom, 31 in. Width of front seat, on top, 45 in., and at bottom, 40 in. The hind seats project 6 in. over the body on the sides, without the molding. Depth of seats, 15 in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in.; fastened with $1\frac{3}{4}$ in. No. 18 screws. Height of front wheels, 2 ft. 11 in., and hind, 3 ft. 8 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, 5 in.; and hind, $5\frac{1}{4}$ in. diameter. Front bands for the front hubs, $3\frac{5}{8}$ in., and back, $4\frac{1}{4}$ in. diameter. Front bands for the hind hubs, $3\frac{7}{8}$ in., and back, $4\frac{1}{2}$ in. diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, 7 in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 37 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 38 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{4}$ in., Collinge patent. Track, front, 4 ft. 4 in., and hind, 4 ft. 8 in., from out to out.

Finish.—Painting of the body and moldings, black; and seat panels, dark green. Gearing, dark green, a shade lighter than the body, with a broad stripe of black, edged with fine lines of light green. Trimming, green cloth, made up either plain or in the block pattern. Carpet, green, with black figures. Mountings, silver.

GLASS-FRONT LANDAU.

(See Fashion Plate No. 33.)

CHANGES in the outline of a vehicle may not always prove successful at the first attempt, but the defects will soon be detected by close observers, and then be remedied. The experiment of introducing the "Barker line," or curved quarter, in broughams, landaus, coaches, etc., has not yet met with much success, and the regular "English-quarter" still holds the field very resolutely, and will apparently continue to do so for some time to come; but vehicles with curved bottom lines are built somewhat more frequently of late, and we still hold the opinion that, in the near future, vehicles with a curved bottom line will again come into fashion.

The most noteworthy change shown in the accompanying Fashion Plate is the introduction of a continuous curve from the front to the hind standing-pillars in the center of the body, which, we think, gives the body

a light and graceful appearance. The frame-work of the body is constructed in the usual way. The rockers are $1\frac{3}{4}$ in. thick, and wide enough to take 4-inch rocker-plates, which will make the rockers in the center about $4\frac{3}{4}$ in. wide. The horizontal rocker immediately in front of the door is contracted, but is framed vertically, which will materially lessen the labor required in dressing and framing. To allow the front standing-pillar to lie even on the rocker, the tenon should be on the horizontal rocker. If the tenon were on the vertical rocker, it would require gluing a wedged piece on the outside, owing to the vertical position of the horizontal rocker and the inclined position of the vertical rocker. On the hind quarter of the body, the horizontal rocker may follow the inclined position of the vertical rocker; and, after being put together, it should be worked square with the top face of the horizontal rocker as far as the bottom edge of the bottomside.

The front corner-pillar and bottomside should be made either of one piece, or framed together. It is the custom of some body-makers, when the bottomside and corner-pillar are made of two pieces, to fit them together at the corner, and merely secure them by a screw; but this is not a good practice. It may be claimed that the two pieces referred to are sufficiently fastened to the rockers, but the frequent opening of the joint in bodies where the front bottomside and corner-pillar have been framed (or rather *not framed*) in this manner, is sufficient proof that the method is defective. We always have believed, and still believe, that the two pieces must be secured together by mortise and tenon; and $1\frac{1}{2}$ in. for the front or boot rocker at the corner of the front corner-pillar is sufficient. It is of great importance to have the distance between the rocker-plates at that point as wide as possible, as this helps to lessen the width of the front corner-pillar.

The front-quarter frames, when the top is folded, are either dropped into the door or stored in the boot. The latter method we always have preferred, as it allows the use of lighter material. That part of the bottom door hinge usually fastened to the cross-bar of the body should, on this style of body, be so fastened as to run parallel with the rocker. If we were to attempt to fasten this hinge to the cross-bar, it would have to be made too much in the twist, owing to the sweep of the body at that point. The other section of this hinge is fastened under the door in the usual way. Great care must be taken in finishing the hinges for the top, to avoid liability to rattling.

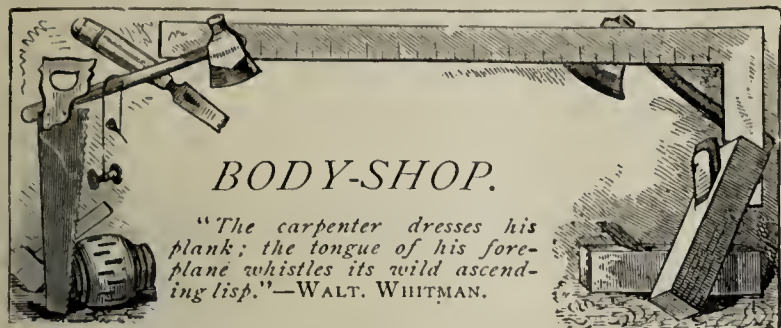
Dimensions.—Width of body at the hinge-pillar, 51 in.; ditto at a lock-pillar, 51 in.; ditto at the back, $42\frac{1}{2}$ in.; ditto at front, 42 in. and at dash, 34 in. Turn-under, 3 in. Rocker-plates, $4 \times \frac{1}{2}$ in., fastened with 2 in. No. 20 screws. Height of front wheels, 3 ft., and hind, 3 ft. 9 in., without tire. Depth of rims, $1\frac{3}{4}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs 6 in., and hind, $6\frac{1}{4}$ in. diameter. Front bands, $4\frac{3}{8}$ in., and back, $5\frac{1}{4}$ in. diameter. Front bands for hind hubs, $4\frac{5}{8}$ in., and back, $5\frac{3}{8}$ in. diameter. Length of front bands, $2\frac{1}{8}$ in. Length of hubs, 8 in. Tire $1\frac{3}{8} \times \frac{3}{8}$ in.

The front springs are elliptic, 40 in. long, from out to out, with 11 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. The hind springs are platform. The side-springs are 42 in. long, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. Width of cross-spring, 40 in., from center to center, with 5 in. arch. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Axles, $1\frac{3}{8}$ in., Collinge patent. Track, 4 ft. 8 in., front and 5 ft., hind, from out to out.

Finish.—Painting of the quarters, back and door panels, dark green and moldings and boot panels, black, with no striping on the moldings. Gearing, dark green, a shade lighter than the body, with a broad strip of carmine, and two medium lines of black at a distance. Trimming for the backs and cushion tops, green goatskin laid off in large diamonds and quarters, upper back, head-lining and driver's-seat, cloth of the same shade as the goatskin. Carpet, green, with black figures. Mountings silver.

NOVEL SUBSTITUTE FOR A CREST.

THE phrase "nine tailors make a man," is said to have originated in the following incident: In 1742 an orphan boy applied at a fashionable tailor's shop in London, in which nine tailors were employed. His interesting appearance opened the hearts of the benevolent tailors, who immediately contributed nine shillings for the relief of the little stranger. With this capital he purchased fruit, which he retailed at a profit. Time passed on, and wealth and honor smiled upon the young tradesman, so that when he set up his carriage, instead of troubling the college of heraldry for a crest, he painted the following motto on the panel of his carriage door: "Nine tailors made me a man."



HINTS FOR BODY-MAKERS AND DRAFTSMEN.

VIII. SIX DESIGNS OF BROUGHAM BODIES.

THE opportunities for introducing changes in the outlines of Brougham and Coupé bodies are neither numerous or marked, and, in presenting the accompanying six designs, we do not claim that they are strikingly novel, but close examination will disclose many slight variations from patterns previously illustrated.

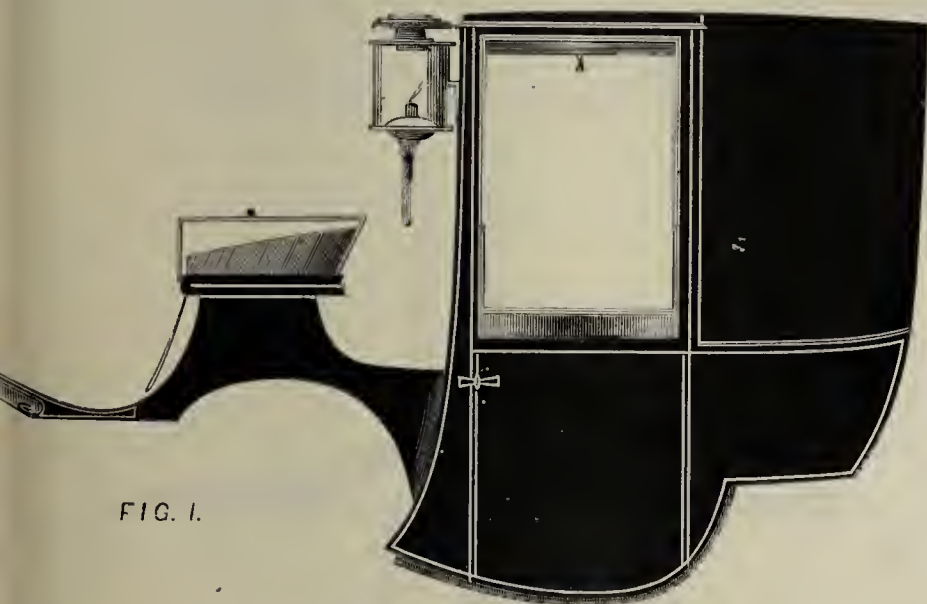


Fig. 1 is a reproduction from a drawing published in the February number of our esteemed contemporary, *Le Guide du Carrossier*, edited by Mr. Brice Thomas, of Paris. The original vehicle from which Mr. Brice Thomas made his drawing, was built by Messrs. Belvalette Brothers, of Paris, exhibited recently at Nice, and, judging by the reports which have reached us, the design proved a decided success. The English quarter is adopted, which does not show any material difference from prevailing styles, excepting that the lower quarter is of somewhat greater height. The chief novelty is the full round sweep extending from the back of the standing-pillar up to the coupé-pillar. The bottom sweep of the boot is a trifle flattened in the center. The height of the body from the ground is 20 in. Height of wheels: front, 2 ft. 11 in., and hind, 3 ft. 9 in.

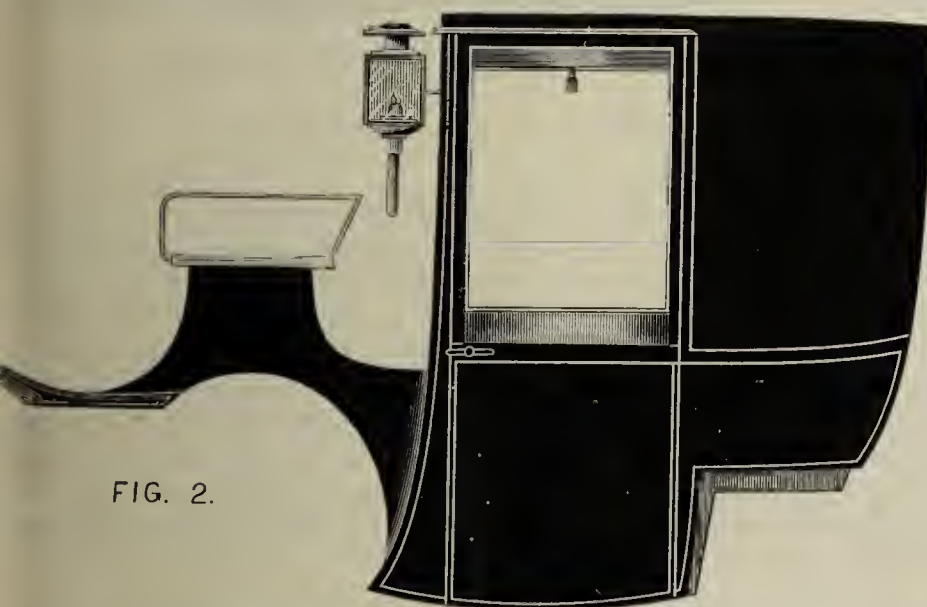
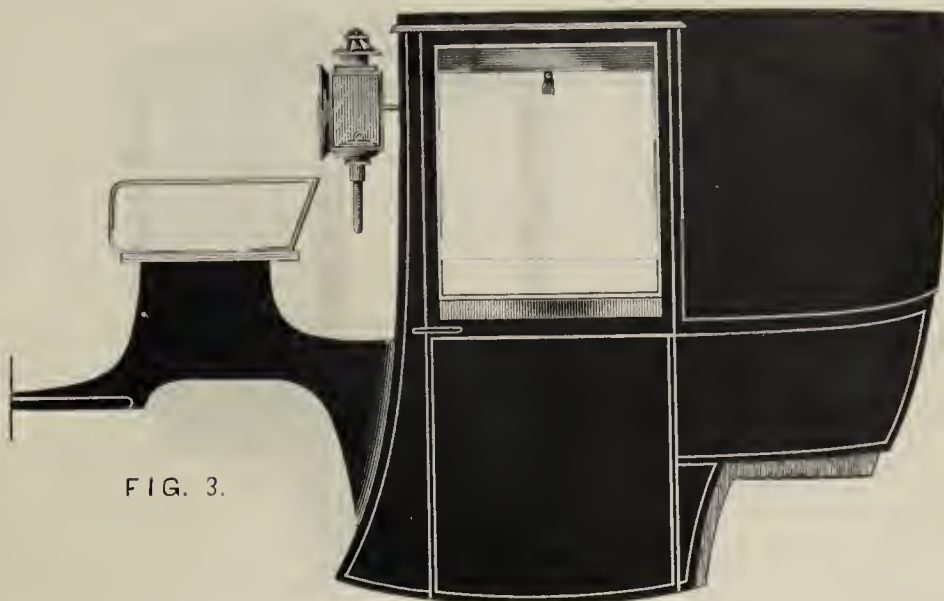


Fig. 2 represents the body of a brougham of medium size, and the outlines show no special novelty, with the exception of the bottom line of the rocker between the hinge and coupé-pillar which is slightly more curved. The upward sweep of the arm-rail is somewhat more gradual than usual, and not so short. The height of the body from the ground is 18 in. Height of front wheels, 2 ft. 10 in., and hind, 3 ft. 6 in.

Fig. 3 represents the body of a full-size brougham. The hind quarter is 24 in. deep at the arm-rail, and the door is 23 in. wide. The coupé-pillar is made somewhat heavier than usual, to be in proportion with the body. The front sweep of the coupé-pillar is not as abrupt at the bottom as was customary last season, but has a more gradual sweep. The bottom line of the boot is not of the regular curved pattern, but of an angular form, with the corner slightly rounded. On such a body, with a

deep quarter and a wide door, the width between the pillars must be increased. A brougham of similar length was recently built in this city



to the order of a New-York gentleman, and it measured 4 ft. across between the hind standing-pillars. It was a splendid specimen of workmanship. The wheels and gearing were in perfect proportion, and in harmony with the whole. The timber throughout the body, and especially the rockers, must also be made heavier than usual. The height of this body from the ground should be at least 18 in. Height of front wheels, 2 ft. 10 in., and hind, 3 ft. 6 in.

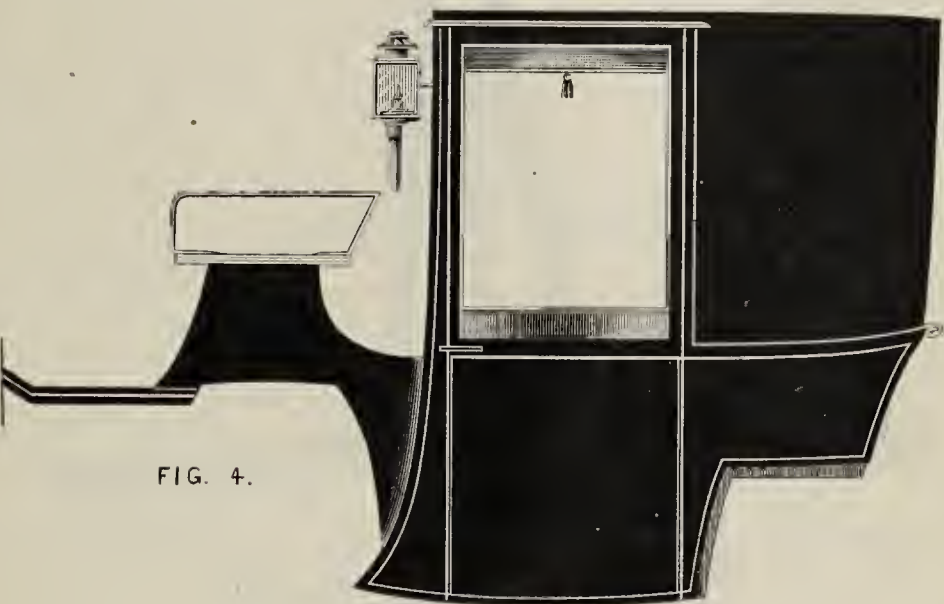


Fig. 4 represents a body intended for a medium-size brougham. Instead of a curved back pillar, the lower section of the hind quarter is here made of a concave shape. The back bottomside and lower part of the corner-pillar are made of one bent piece, and must be high enough for the back panel to cover the joint. The arm-rail on this drawing is extended beyond the back corner-pillar, and is finished off with a scroll. This scroll, however, can easily be dispensed with, if preferred. The wheel-house is represented of angular shape, but this also is a matter of taste, and it does not matter whether the wheel-house is of curved or angular form. Height of body from the ground, 18 in. Height of front wheels, 2 ft. 10 in., and hind, 3 ft. 6 in.

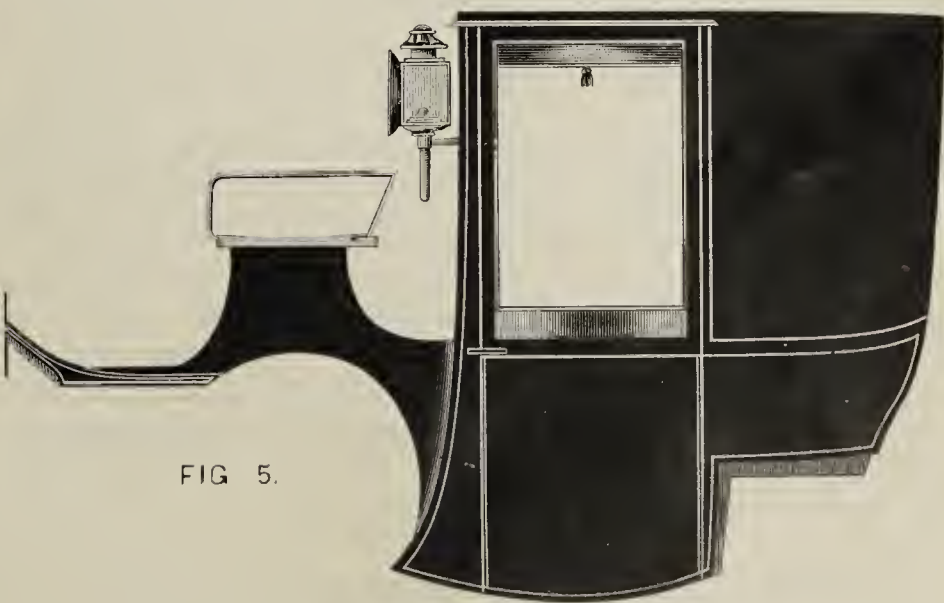


Fig. 5 shows a brougham body of smaller size. The back corner-pillar is of the ogee pattern, a style not used very frequently, but which may occasionally be seen on the thoroughfares in the cities. The concave portions on the pillar of this design are but slightly indicated, as too great emphasis of concave lines on an ogee pillar would prove detrimental to the general appearance of the body. The bottom lines of the body, be-

tween the standing-pillar and front face of the coupé-pillar, are curved more than those shown in Figs. 2, 3 and 4. A slight variation from prevailing styles will also be observed in the bottom line of the boot. The

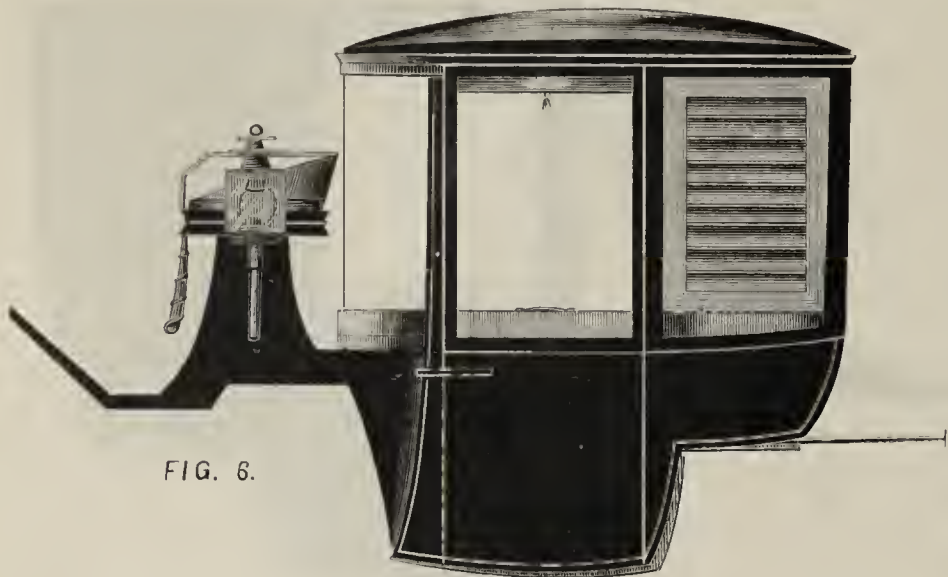


FIG. 6.

back bottomside and lower part of the corner-pillar, as in the case of all the preceding designs, are made of bent wood. Height of body from the ground, 18 in. Height of front wheels, 2 ft. 10 in., and hind, 3 ft. 6 in.

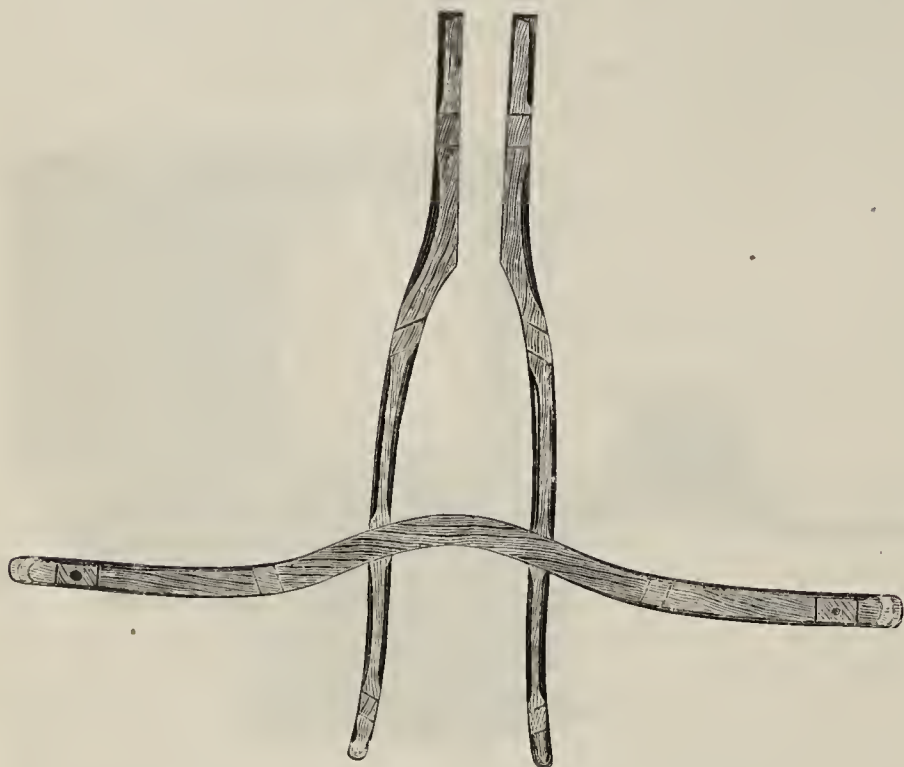


Fig. 6. Top View of Futchels and Bottom Bed.



Fig. 7. Side View of Futchels and Bottom Bed.

FIGS. 6 TO 11. SPECIMEN ROCKAWAY CARRIAGE-PART.

Fig. 6 shows a body reproduced from the photograph of a prize exhibition vehicle, kindly forwarded to us by Messrs. Stuart & Co., the celebrated coach-makers of Calcutta, India. It is termed a "Single-seated Circular-front Brougham," and was exhibited by the makers at the International Exposition recently held at the above-named city, in recognition of which they received a gold medal and diploma. This style of Brougham (or more properly Coupé) has a circular front, and differs in several points from those built in this country. The boot, for instance, is unusually narrow, and is of considerable height. The driver's-seat is placed very close to the circular front. The back corner-pillar from the arm-rail to the top-rail, is almost straight. Venetian blinds, such as are shown, are the rule, rather than the exception, in the tropical climate of India, as they permit free ventilation. The top has considerable arch. A step is attached to the hind axle, and is intended for the footman to stand on. Height of body from the ground, 17 in. Height of front wheels, 2 ft. 4 in., and hind, 3 ft. 2 in.

COMPARATIVE REMUNERATION OF LABOR.

WITH regard to the remuneration of labor, assuming the product of labor to be 100, in Great Britain 56 parts go to the laborer, 21 to capital, and 23 to government. In France, 41 parts go to labor, 36 to capital, and 23 to government. In the United States 72 parts go to labor, 23 to capital, and 5 to government.



CARRIAGE-PARTS, WITH SPECIAL REFERENCE TO PLATFORM WORK.

LECTURE BY MR. H. G. SHEPARD, OF NEW-HAVEN.

(Continued from page 181 in last number.)

SPECIMEN ROCKAWAY CARRIAGE-PART.

I have here some specimen carriage-parts which I propose to donate to the school. They illustrate my idea of how a carriage-part should be proportioned. In these, the bottom plate of the under bed is the same width all the way. The wooden bed is wider than it is deep, but, after being ironed, these measurements change places.

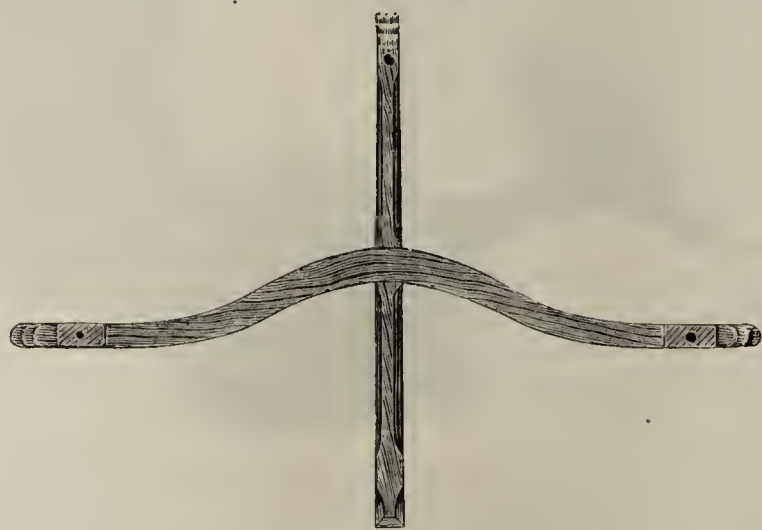


Fig. 8. Top View of Puncheon and Top Bed.



Fig. 9. Side View of Puncheon and Top Bed.



Figs. 10 and 11. Front Views of Top and Bottom Beds.

This first (Figs. 6 to 11) is intended for a Rockaway. You know it is very important to get a Rockaway carriage-part as low as possible, for the boot is low to begin with, and it does not give much room for a carriage-part. If you make the beds perfectly straight, it will take up about $4\frac{1}{2}$ inches between the body and the springs. In the center of this specimen notice that the bed is dropped, and the body can be hung within 3 inches of the spring. This, I believe, will take about $3\frac{1}{2}$ inches when it is ironed, and yet it gives you good depth for the timber, and makes a comparatively light and airy looking carriage-part. The pole should be a continuation of the futchels, without a break either down or up.

SPECIMEN LANDAU CARRIAGE-PART.

I also have a Landau carriage-part (Fig. 12). For a wonder it is almost exactly like the draft on the board [already illustrated and described pages 180 and 181], and yet the instructor had not seen it when he made his drawing, and neither had the man who made this carriage part ever seen Mr. Gribbon's drawing. You will notice, however that they are almost exactly alike. The futchel bed is a little different. I think the bed is better here than on the draft, but this is largely a matter of taste as viewed from my standpoint.

IRONING CARRIAGE-PARTS.

Any carriage-part should be squared up and fixed permanently before it goes into the blacksmiths shop, so that it may remain fixed while

being ironed. After the iron plates are put on, there is no danger of the futchels getting out of place.

In regard to ironing, the bottom plates form one of the most important parts of the work done in a blacksmiths shop in connection with a carriage-part. You often find a coating of chalk on the bed. It is more than likely that it covers a good quantity of charcoal. The blacksmith finds that an iron can be easier fitted when hot than when it is cold, and, in fitting a hot iron, he often destroys $\frac{1}{8}$ or even $\frac{1}{4}$ inch of the wood. Now, this is all wrong! The plate should be fitted when nearly cold, and the wood should not be burned in the least, but should have its full strength right here between the bearing of the fifth-wheel and spring. The plate should be made of good Norway iron, which I believe to be the best for this purpose.

Another weak point in carriage-parts is the stay near the spring. This should be good and strong, and should taper where it strikes the futchel. Still another weak point, due to neglect in the blacksmiths shop, consists in imperfect fitting of the irons to the carriage-part; and, in fact, in the fitting of the irons all around. One of the first things the helper learns in a blacksmith-shop is to "pane" the joints. Such joints look very nice, but they don't wear.

Still another complaint which may be lodged against the blacksmith-shop, is the use of the burning-iron. It was said of the noted old carriage-maker, Jason Clapp, of Massachusetts, that he would never

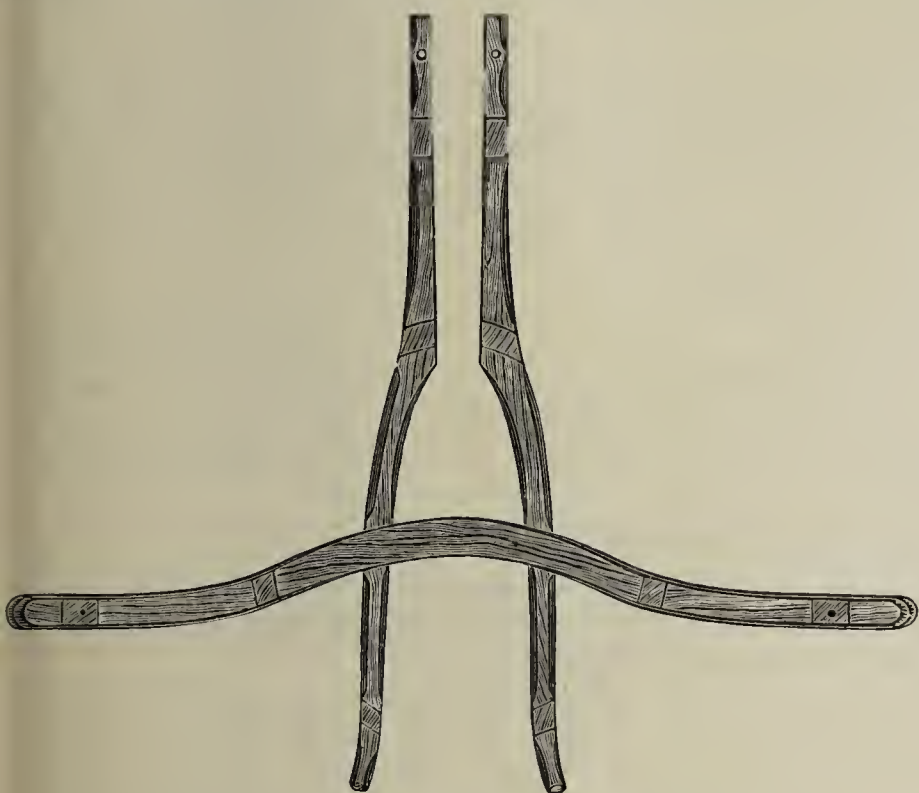


Fig. 12. Top View of Futchels and Bottom Bed.



Fig. 13. Side View of Futchels and Bottom Bed.

FIGS. 12 TO 17. SPECIMEN LANDAU CARRIAGE-PART.

allow a blacksmith to use a burning-iron to make holes. He always compelled his smiths to "ream" the holes. If the hole needs but little burning and is properly burned, I would not object to it; but helpers seem sometimes to think that the bigger the hole the better it is, and they use a $\frac{1}{2}$ -inch burning iron to make a hole for a $\frac{3}{8}$ -inch bolt. [Laughter.] Have you any questions to ask in this connection?

STRENGTHENING AXLES BY VERTICAL PLATES.

MR. BRITTON: You are alluding to the weak points. You touched upon the same question in connection with the shafts and the brake-head. Now there is a question that has been a mooted one for a dozen years past. There is a view on the blackboard (Fig. 18) of the back axle of a buggy,



FIG. 18.

showing the bed, the axle, and the two clips. Now, is it your opinion that, were we to put a vertical plate in the wooden bed the whole length, stopping it at the shoulder of the axle, the axle as a whole would be strengthened, providing we stopped the vertical plate at the shoulder of the arm?

MR. SHEPARD: If there was a good joint at the shoulder of the arm, or at the collar (supposing a collar to be there), and if the vertical plate formed a good joint with that collar, I should say that the arm was strengthened by its being there; but if it did not fit perfectly at that point, I should say there was little or no benefit beyond the end of the iron.

MR. BRITTON: How could it be fitted? By the clips you combine the axle, the bed and the clips, as one piece, by strapping them together. But down at the end, they have lost the strength given elsewhere by the combination of the three parts, and you come to a dead stop. This leaves apart of the axle that is not strengthened.

MR. SHEPARD: That is true in one sense. But we will suppose that the spring of an axle-bed is right at the shoulder, the center of gravity, or the center from which it would work is the center of the axle. Then the tops of the two hubs would be nearer together, and the distance would be still less after it was sprung than it was before. Now, if that vertical plate were fitted in there, it would prevent their coming together.

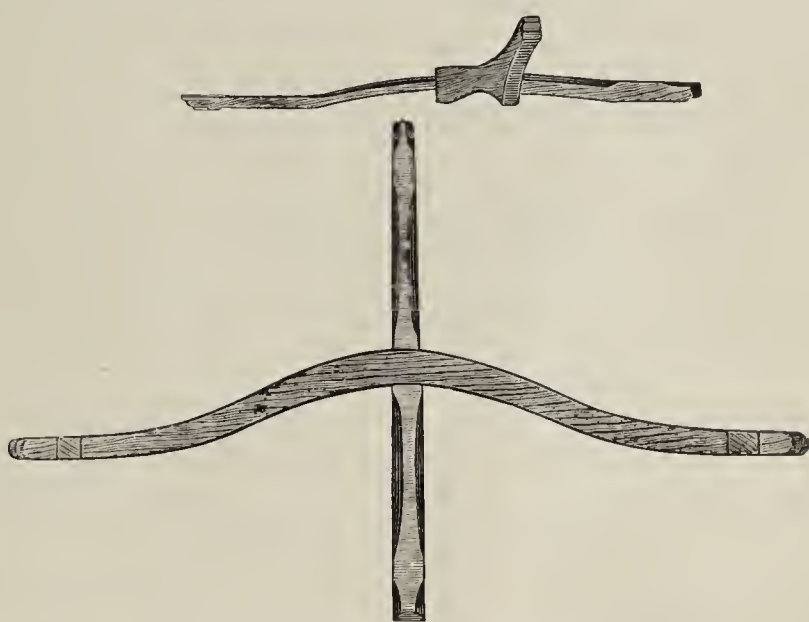
MR. BRITTON: But the hub is revolving all the while. You could not fit it up close to the shoulder.

MR. SHEPARD: It is against the collar of the axle that I would propose to fit that bed.

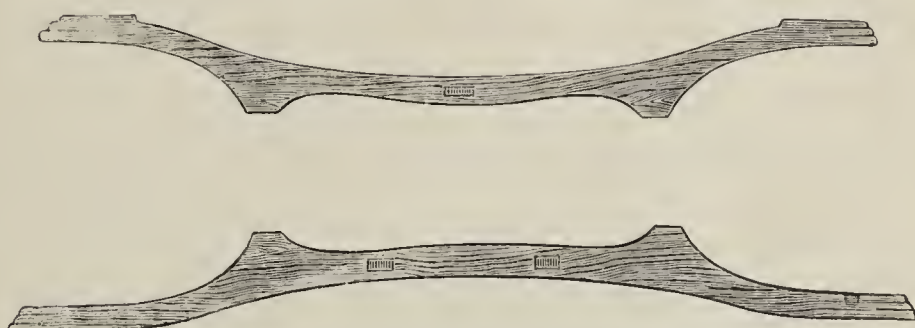
MR. BRITTON: In case it settles, and the top of the hub or top of the collar rests against the bed, I agree with you that it stiffens it at that place; but then you weaken it at the bottom.

MR. SHEPARD: I hardly think so.

MR. BRITTON: In other words, you *stiffen* it, but you do not *strengthen* it. You cannot bind the two together at that point. You get the clip near there, but you cannot get the clip close up to the hub.



Figs. 14 and 15. Side and Top Views of Puncheon and Top Bed.



Figs. 16 and 17. Front Views of Top and Bottom Beds.

MR. SHEPARD: I think it would stiffen it to a certain extent. If the end of this vertical plate fitted solidly against a square collar, it would certainly continue its influence to the opposite side of the collar; and the opposite side of the collar and arm being within the hub, where there is no chance to spring, we may say that it practically strengthens the whole axle.

MR. BRITTON: Well, I have thrown out the suggestion merely because it has long been a much mooted question.

(To be concluded next month.)

A RESPECTFUL SUGGESTION.

AMONG the countless good stories attributed to Artemus Ward, is one which tells of the advice he gave to a Southern railroad conductor soon after the war.

The road was in a wretched condition, and the trains were run at a phenomenally low rate of speed. While the conductor was punching his ticket, Artemus remarked: "Does this railroad company allow passengers to give it advice, if they do so in a respectful manner?"

The conductor replied in gruff tones that he guessed so.

"Well," Artemus went on, "it occurred to me that it would be well to detach the cow-catcher from the front of the engine and hitch it to the rear of the train. For, you see, we are not liable to overtake a cow, but what's to prevent a cow strolling into this car from the rear, and biting a passenger?"



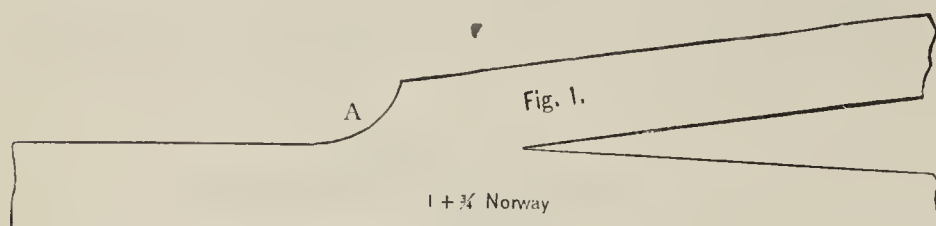
FIRST-PRIZE DESIGN FOR IRONING A PHYSICIANS' PHAETON.

[By Mr. R. H. Lee, of No. 214 South 5th-street, Philadelphia, Pa.]

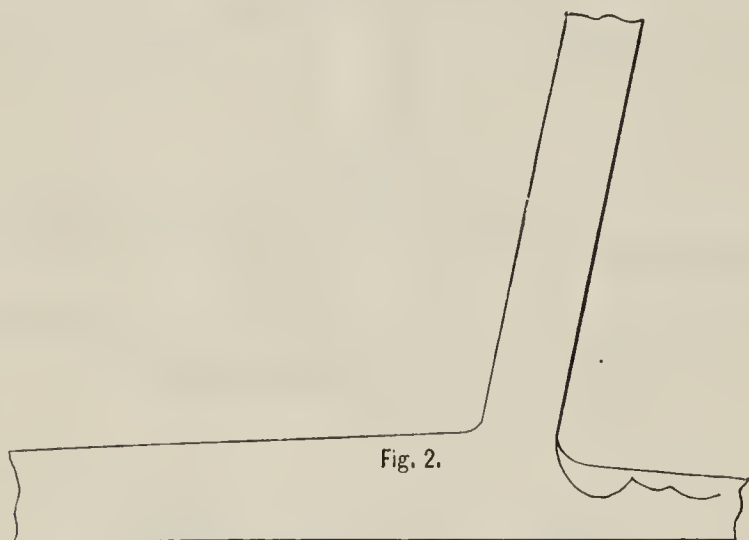
(Continued from page 185 in last number.)

HOW TO FORGE A STAY-HEEL.

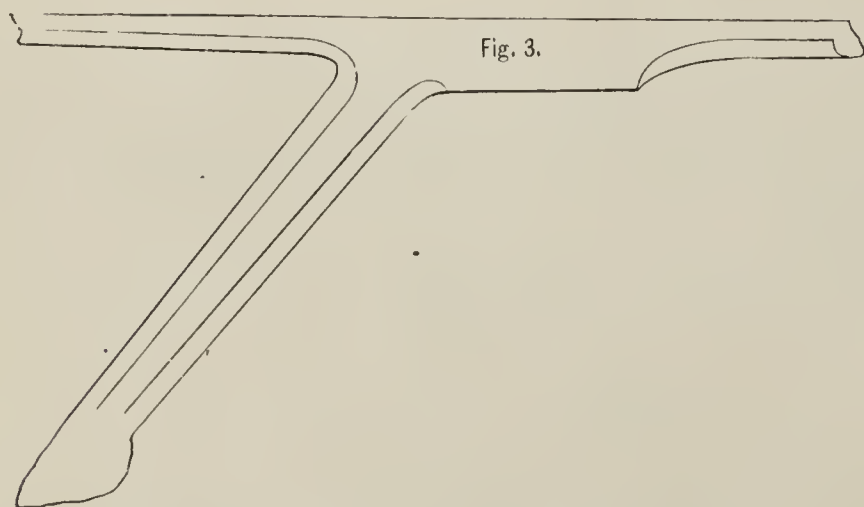
My first suggestion is, to forge all the work solid that can be gotten out in that way.



We will begin at the wing stays, and take a piece of Norway iron, $1 \times \frac{3}{4}$ in., as per Fig. 1. Shoulder this at A, which can be done over the front of the anvil. Then split the end furthest from you, as shown in this same Fig. 1. Open out with a white heat, and be careful to use a small fuller in all corners. A set-hammer should never be used for this purpose.



After opening out, you will have the shape shown in Fig. 2. Draw your ends the required length, and swage the part opened out, $\frac{3}{4}$ in. oval, and you will then have the shape shown in Fig. 3, which gives a good stay-heel or strap.



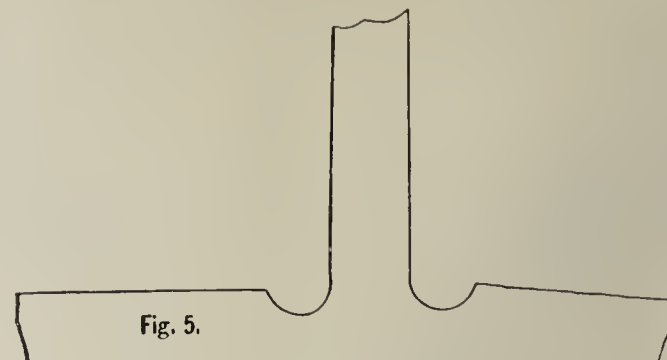
HOW TO FORGE A STRAP FOR LOCK-PLATE STAY.

To make the strap for the stay leading from the lock-plate (as illustrated in Fig. 14), take the same size iron above spoken of, shoulder it, and split it as shown in Fig. 4.

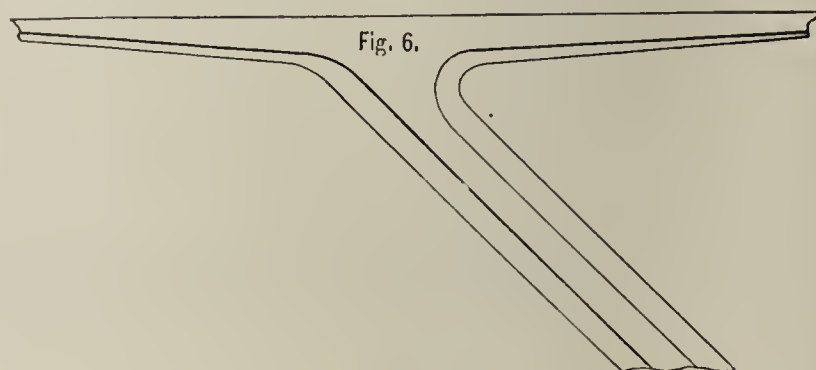


Then spread apart the two split portions, producing the shape illustrated in Fig. 5.

Fig. 5 shows the same piece after the split portions have been spread.

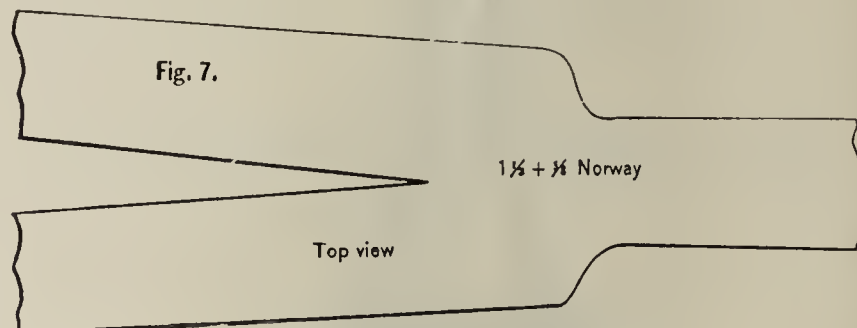


From this point in the operation, proceed as described below.

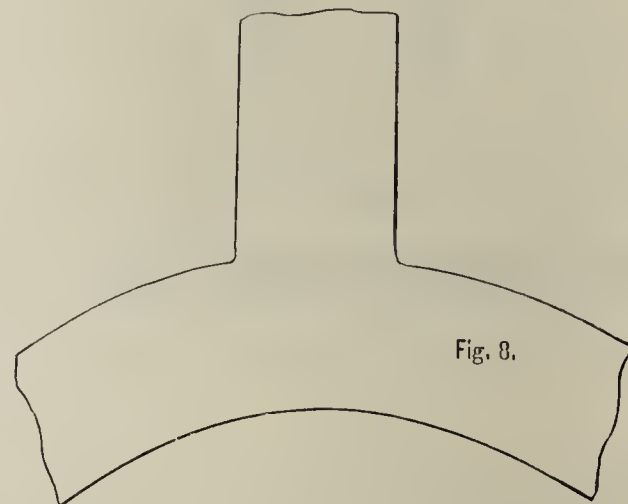


Open out, draw and swage the ends, and we then have, as the result, the shape shown in Fig. 6, which is a strap for the stay leading from lock-plate, as will be illustrated further on by B, Fig. 14.

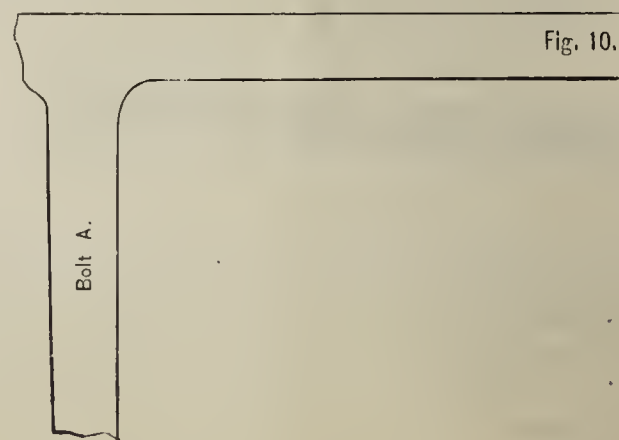
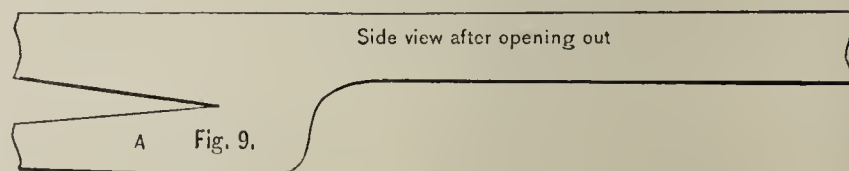
HOW TO FORGE A SAFETY-HOOK.



To forge the safety-hook we proceed as follows: We take a piece of Norway iron, $1\frac{1}{2} \times \frac{5}{8}$ in., and shoulder as per Fig. 7, allowing the end to thicken up as much as possible.



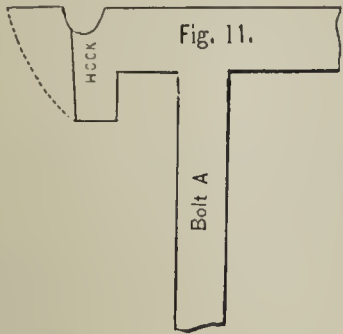
We then split it as shown in the same Fig. 7, and open out and produce the shape shown in Fig. 8.



Then we split the shoulder, as per Fig. 9, at A; and open out as shown in Fig. 10, where A of Fig. 9 has been turned down.

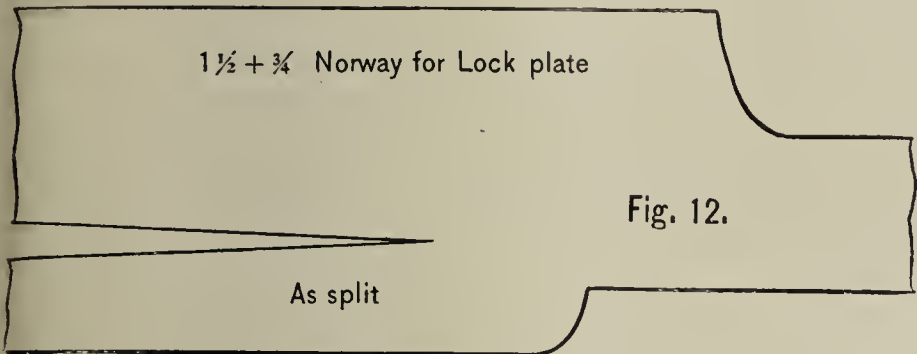
Draw the bolt, first oval, and then shoulder it to round.

Then shoulder and bend the piece shown in Fig. 10, producing as the final result the safety hook shown in Fig. 11.

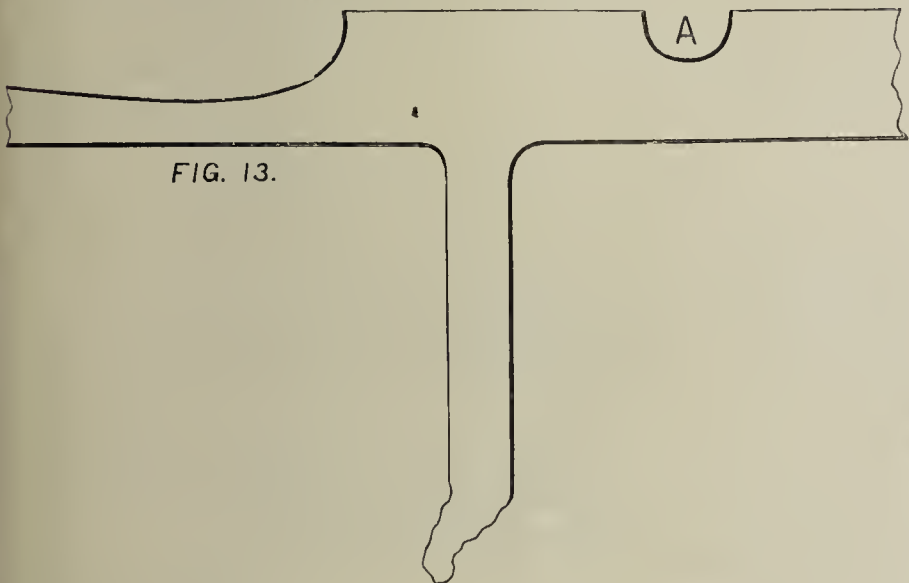


HOW TO FORGE THE COMBINED LOCK-PLATE AND STAY.

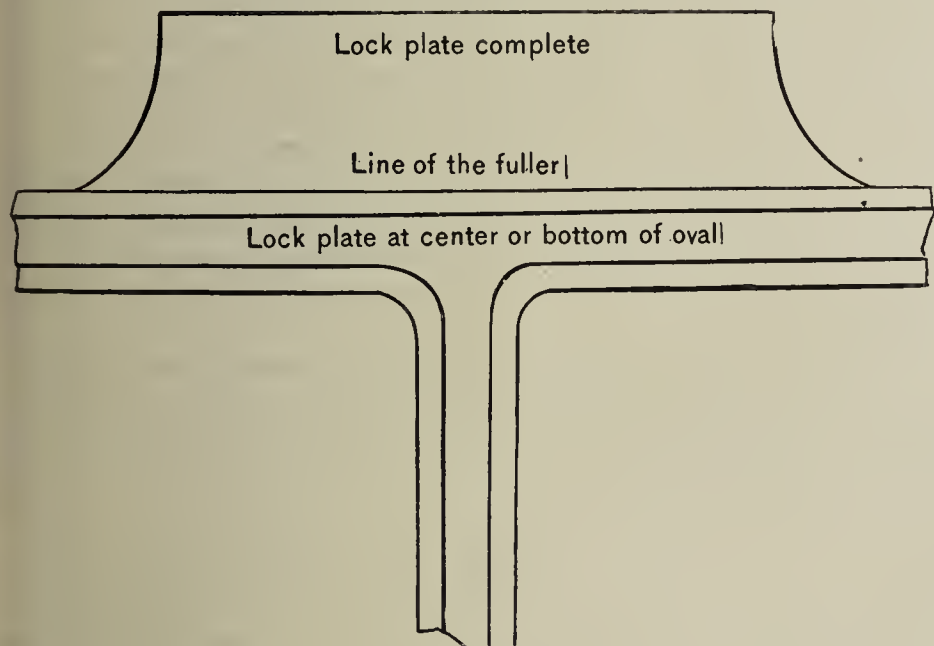
To forge the combined lock-plate and stay, called for by my working drawing, we take $1\frac{1}{2} \times \frac{3}{4}$ in. Norway iron, and shoulder it as is shown in Fig. 12.



Next open out the split portion shown in Fig. 13.



Fuller at A. Draw down to size, and we then have the shape shown in Fig. 14, which makes a solid and substantial lock-plate and stay combined.



In the concluding portion of this letter I will offer a few hints and suggestions as to improvements in the construction of Physicians' Phaetons.
(To be continued.)

DESIGN OF FIFTH-WHEEL CRITICIZED.

A RESPONSE.

EDITOR OF THE HUB—DEAR SIR: I see by your May number (page 115) that a Mr. Brown, referring to my fifth-wheel, as illustrated and described in your January number (page 640) says he "made the same thing in 1869, but abandoned it, as it has no value."

Mr. Brown unquestionably has a perfect right to condemn an article he knows is of no value; but, at the same time, I think he should show some cause why it has no value. Perhaps, in his case, it may not have been the fault of the fifth-wheel, but the fault of the one who constructed it. Will Mr. Brown please explain!

I had given this fifth-wheel a fair trial of one year before I introduced it to *The Hub*, and it has given great satisfaction, which was the main reason why I called *The Hub's* attention to it. If any of your readers discover a defect in its construction, I will be much obliged if they will let me hear from them; and I hope Mr. Brown will give me the advantage of his great experience and knowledge, and not play dog in the manger. Please show up, Mr. Brown!

I think if Mr. Brown had noticed your "Critics' Corner," and had read your remarks made there, he would certainly have given some statement why the fifth-wheel, in his opinion, has no value.

JAS. E. BAIRD.

227 North Eden-st., BALTIMORE, MD.

HOW TO STRAIGHTEN SLEIGH SHOES.

EDITOR OF THE HUB—DEAR SIR: Thinking I might perhaps contribute something of interest to your most valuable *Hub*, and by so doing benefit some fellow members of the craft, I beg to show you a simple means by which warped cast sleigh shoes may be made straight and true, or how more crook can be put in or taken out, as may be required.

All the repairer needs is a piece of $1\frac{3}{4} \times \frac{5}{8}$ inch iron, about the length of the shoe or a little shorter, bent as shown in the accompanying sketch, wherein the lower line shows the shoe.



Now heat the shoe to be straightened about cherry red, put it alongside the iron, grip on the shoe with your tongs, and place in the vise at the point where you wish to bend the shoe. Screw the two together very slowly until you get the desired bend. Then take out and let cool.

By using this simple method, you will not fail to get satisfactory results, and there is no liability of hurting the quality of the metal unless thrown in the water tub to cool. Any one trying this method will be delighted to see how easily the task can be done.

A. J. BOSTWICK,
Carriage and Sleigh-builder.

SHARON, CONN.

RULE TO DETERMINE LENGTH OF AXLE-BED.

EDITOR OF THE HUB—DEAR SIR: In your February number (page 711), Mr. G. H. Babcock inquires what length of axle-bed should be used to make a wagon track 4 ft. 8 inches. I am a practical blacksmith of forty-nine years experience, and the rule I learned and now practice is as follows:

Lay the two wheels together, with the back side of the hubs resting one on the other. Then get the width from center to center of felloe. This measure is, say, $8\frac{1}{2}$ inches. Deduct this from the track, 4 feet 8 inches. To this 3 feet $11\frac{1}{2}$ inches, add the half of the measure you want the wheels to run under, say 2 inches, or the half of this 1 inch. Add this to 3 feet $11\frac{1}{2}$ inches, which will make 4 feet $\frac{1}{2}$ inch.

To make the computation more clear, I repeat the figures below:

$$\begin{array}{r} 4 \text{ ft. } 8 \text{ in.} \\ 8\frac{1}{2} \\ \hline 3 \text{ ft. } 11\frac{1}{2} + \\ 1 \text{ in.} \\ \hline 4 \text{ ft. } \frac{1}{2} \text{ in.} \end{array}$$

The above rule will never fail, and is very simple.

For gathering the wheels, never allow more than $\frac{3}{8}$ inch, or to each wheel $\frac{3}{16}$ inch, rather less than more; and your axle will then always run easily, and wear evenly from collar to nut. I never in my lifetime had any trouble with an axle, by following this rule.

I am getting up an apparatus for heating tires quickly and cheaply. As soon as it is in good working shape, you will hear more about it.

WM. LEHMANN.

MENOMINEE, MICH.

SHOELESS HORSES.

WHEN starting out over the Western prairies, the Eastern visitor is surprised at discovering that the horses are not shod. He turns to the driver to inquire why this has not been attended to, especially as they are to make such a long journey. He is informed, in reply, that the horses are not provided with shoes on the prairie. The shoes are not only unnecessary, but the animals do much better without them.



ARE THEY THE SAME?

TO THE EDITOR: Are not fire-proof paint, Grafton paint, Ohio paint, and English filler all one and the same material? H. G. H., Holmdel, N. J.

ANSWER.—Inquiry seems to point to the fact that they are not. In the New-York market nothing seems to be known of the material called "Grafton paint." "Ohio paint" is a filler of questionable merit, made and sold in the West. Mr. A. Keppelmann acts as the agent in New-York city for the sale of "English filler."

REMOVING OLD PAINT.

WE have received for inspection a section of a buggy panel from which the old coats of paint and varnish have been removed by means of a receipt furnished by Messrs. Oberly & Schlichter, of Telford, Pa.

The sample certainly shows a very clean, smooth surface, and we should suppose that a preparation capable of accomplishing this result expeditiously, would be found very serviceable in the carriage paint-shop. The above-named firm will treat with those who apply for the formula.

COMPARATIVE DURABILITY OF RED-LEAD AND VERMILION.

TO THE EDITOR—DEAR SIR: I wish to ask you some questions, and I send postage so you can answer by mail or through *The Hub*, as you may prefer. I am a builder of heavy farm-wagons and lumber-wagons.

First, What kind of varnish is best to use on such work? Is one-coat coach the best, or had I better use rubbing varnish, and then some finishing?

Second, What paint is most durable when put on right, red-lead or vermilion? I take *The Hub* mostly for information on painting. M. L. CHUNN, Cold Water, Ky.

ANSWER I.—We think it hardly necessary for you to use rubbing varnish on the kind of work you mention. One-coat coach varnish should be all sufficient, providing the under-coats are all right. This style of vehicle does not require the fine finish of a pleasure vehicle, and one-coat coach varnish is sufficiently brilliant and durable.

ANSWER II.—Red-lead is the most durable. For first coats, red-lead may be added to white-lead, producing a flesh color. Both these leads take up a large proportion of oil, and consequently produce an elastic and durable priming. Then vermilion may follow, which does not take up as much oil as the red-lead, and does not require it, for the simple reason that the oil from the first coats has entered the wood and shut out all danger of absorption. Vermilion is the only proper color for the subsequent coats, and is sufficiently durable for all practical purposes.

FURTHER RESPONSES TO TWO RECENT INQUIRIES.

(See January *Hub*, page 641.)

MR. EDITOR OF THE HUB—DEAR SIR: In your January number of *The Hub*, page 641, I noticed in the Paint-shop department two questions asked and answered, viz.: first, "What is the cause of certain panels blistering?" and second, "What causes carmine (?) paint chipping off to the lead painting?" These are questions of great importance. Permit me, therefore, to give a few more explanations thereupon.

PAINT BLISTERS.

Blisters in paint arise from two main causes. The first is the effect of soft paint giving way to air pressure in wood during hot weather, when too much oil has been used, especially boiled oil (which, having lost its binding qualities by boiling, becomes entirely unfit for durable painting); and also when the woodwork has been either accidentally or carelessly greased in spots or larger spaces before paint was applied, reacting and softening the paint at these greased parts; hence the cause of certain panels blistering, all or in spots.

The second cause of blistering is from volatile oil (mostly coal oil) used in the preparation of Japan dryers and varnishes. These volatile oils do not all evaporate in ordinary weather, but some parts remain in the paint

and turn into gas at a higher temperature, in the hot season; this is the reason why paint on iron sometimes blisters.

These two sources of trouble are often difficult to overcome, and when they have penetrated the wood it becomes necessary to repaint work several times before the cause is removed.

PEELING OF PAINT TO THE LEAD COLOR.

In regard to the second question, the peeling of paint to the lead color is also caused by soft paint, to explain which, one must first know the relations of pigments to linseed oil or varnish.

All pigments may be classified, according to their chemical affinity to raw linseed oil, into three kinds: Firstly, those that form with raw linseed oil a chemical combination called soap. This form is used for priming and under-coats, and consists mostly of lead, zinc and iron bases, as red-lead, which takes up the most oil; white-lead, the carbonate, Dutch-process made, and zinc-white; then follow those that hold carbonate of iron, as iron paint, Turkey umber, yellow ocher; following with modern white-lead made by the wet or vinegar process, and also chrome yellow, chrome green, etc.

The second class, being neutrals, form no chemical combination with linseed oil, and need a large quantity of dryer to harden the paint. They include all blacks, vermilion, Prussian blue, Paris blue and Chinese blue, also Terra Sienna, Vandyke brown, Paris green, verdigris, ultramarine, genuine madder-lake and carmine. The last seven named are, on account of their transparency, better adapted for varnish mixtures, *i. e.*: glazing.

The third class of pigments act destructively to linseed oil. Having an acid base, they form with the albumen of the oil a jelly, that will neither harden sufficiently nor work well under the brush. Among the most troublesome are all the lower grades of carmine, madder lakes, rose pinks, etc., which are more or less dyed with acidulous dyes, forming a soft paint that, when once dry on a job, can be peeled off like the skin of a ripe peach; hence the cause of paint chipping to the lead color.

BLOOMINGTON, ILL.

LOUIS MATERN.

FINISHING VARNISH STRIKING IN.

EDITOR OF THE HUB—DEAR SIR: I would like to ask you, Mr. Editor, about a little trouble which happened to me last week.

We had worked in our new shop about four weeks. We finished two black wagon bodies with much gold lettering on the same, and used Nobles & Hoare's railway finishing varnish, and next morning we found it all struck in, and every brush-mark visible. The first coat of color-and-varnish was rubbed down, and after the elapse of five days, we put the last coat of color-and-varnish on it, and lettered and finished it. It never did this with Harland's railway varnish. Do you think the cement floor of the new shop had anything to do with this, by not being sufficiently dry; or what other cause could it be?

I would greatly appreciate it if one of your agents would come and inspect the place himself.

ANXIOUS PAINTER.

BROOKLYN, N. Y.

ANSWER.—We have inspected our correspondent's shop, as requested, and find that his new paint-room promises, when completed, to be one of the most perfect in this vicinity. At the time, however, when the above-mentioned work was in progress, the shop was in an unfinished condition, and probably more or less damp and cold, and these two causes would form a sufficient explanation of the deviltry he names. The under-coats, not being sufficiently dry, by reason of dampness and cold, would allow the succeeding coats of paint and varnish to sink in. We do not think the finishing varnish named was responsible in any respect for this result. Any varnish would have done the same under the conditions we have alluded to.

We would further suggest to our correspondent that he hereafter keep the floor of his paint-room as dry as possible, and then ventilate the room. He possesses all the necessary conveniences, and it now only remains to utilize these.

TWO ORDINARY CASES OF VARNISH CHANGING COLOR.

TO THE EDITOR—DEAR SIR: Can you or any of your correspondents explain the reason of varnish turning white after running out for some time? The varnish is a cheap grade of varnish which we get by the barrel in New-York, costing about \$2.25 per gallon. We use it exclusively for farm wagons. The groundwork is all painted in oil. The wagons, after running about three or four weeks, last winter, have come back looking the same as if you had taken a whitewash brush and gone over them; and some of them are spotted like a leopards skin. We notice, after rain or a thunder-storm, that these results are more liable to occur.

Also, can you tell me the cause of finer grades of varnish sometimes turning blue, or similar to a peach's bloom.

H. P., Painter, St. Joseph, Mo.

ANSWER I.—This description of the varnish deviltry first mentioned—namely, turning white—contains, as well, a very clear intimation of the cause, which is expressed in the single word "cheap."

The varnish you describe is apparently what is sold as "No. 1 furni-

ture varnish," and not at all adapted for work that is to be exposed to the weather. It does not possess the ingredients that give vitality to a finishing coat, but is resinous and hard, dries very quickly, and is quickly and often permanently affected by atmospheric influences. This varnish is very likely well suited for inside work, but what you require for your wagon work is a fair grade of finishing coach varnish.

ANSWER II.—The second deviltry our correspondent refers to, is an ordinary case of "blooming," which is liable to occur, under certain conditions, in the case of the best coach varnishes. There is no sure prevention for the trouble, as it is entirely due to long continued dampness and cold, or dampness and heat, such as during dog-days, when the surface of the varnish gathers a slight film from the surrounding atmosphere; but this film can be easily and permanently removed by the application of plenty of clear cold water, which should then be carefully dried off with a damp chamois-skin.

The nearest approach to prevention of "blooming" is to have the room containing the vehicle, whether paint-shop, repository or stable, as dry as possible and well ventilated.

ANOTHER CASE OF "BLOOMING."

TO THE EDITOR—DEAR SIR: Can you tell me why a carriage, just newly painted black, turns color on very wet or damp days, and is a very plain and decided blue? Wherever water from the top runs down, it shows a line of bright blue, as though painted so. During dry and warm weather, it returns to its color, black. What is the explanation of this? Should it do so? Is anything wrong with paint or varnish? I have just had the carriage newly fixed up and painted, and to-day it looks as described, and unfit to be seen. I also see some others looking the same way, but not so badly as mine. Your attention will oblige several, including the painter, who can't explain.

D., South Amboy, N. J.

ANSWER.—This is another simple case of "blooming." The painter is certainly not to blame, and the varnish is probably not at fault, although some varnishes bloom much more readily than others.

The cause of blooming has been fully ascertained. It results from long-continued dampness, either in a cold or warm atmosphere, but still worse under conditions of heat, as during dog-days. A film gathers over the surface, but this does not penetrate it, in case it is promptly attended to. The cure is also simple. As soon as "blooming" is discovered, the carriage should be promptly and thoroughly washed in clear cold water, and the varnish surface should then be carefully dried off with a damp chamois-skin.

It is a well ascertained fact that English varnish is more liable to "bloom" than the best American, and experts in varnish and its peculiarities have learned to immediately distinguish between the foreign and best home product by the application of cold water, when the English varnish will retain the water, while the best American repels and sheds it. Many tests of this kind have been made, and it has invariably been found that the varnish which most attracts water or dampness is most liable to "bloom;" while the varnish that resists dampness and consequently presents the driest surface, is best calculated to resist atmospheric influences, and to be least liable to "blooming" when subjected to the adverse effects of dog-day weather, thunder-storms, etc.

A recent article in the *Spirit of the Times* refers to this same subject as follows, and properly calls attention to the importance of keeping all carriages in dry and well-ventilated rooms:

"Varnish turning blue, and streaking out a lighter blue, wherever water trickles down, shows what painters call 'bloom.' It is caused by dampness, and insufficient washing in cold water and exposure to the air. If our correspondent will see that his carriage is placed in a dry place, is thoroughly washed, and, what is of still more importance, thoroughly chamoised off dry afterward, he will find the 'bloom' will leave. This question of 'bloom,' we understand, has troubled carriage-makers considerably, and is peculiar to the English-made varnish. We learn, upon inquiry, that the best American-made varnishes are very much less liable to this trouble. The usual determined effort on the part of American manufacturers to overcome defects has been in this instance, we understand, very successful."

A MYSTERIOUS CASE OF BLISTERING.

EDITOR OF THE HUB'S PAINT-SHOP—DEAR SIR: A most mysterious trouble has happened in our paint-shop.

The first of the trouble began about three weeks ago. We sold a coupé-rockaway to go to a neighboring town, and sent it on an open car, and it was protected by two coverings, one a cotton and the other an enamel cover. It rained that day; that is the reason the enamel cover was used. When it was delivered, the enamel cover was taken off, and the cotton cover remained on till the next day, when the owner was about to go out and show himself with his new carriage. Then the cotton cover was removed, when lo and behold! the roof was all blistered. Of course he sent back word to the factory.

We examined the roof. The verdict was that it was burned by sparks from the locomotive, although the coverings were not even scorched; but we allowed for that because they were damp from rain.

I did the roof over, filled it up again, and finished the job the second time. It turned out beautiful, and, as we all supposed, as solid as a rock. The second time we sent the carriage over-land on a truck, and also sent a man down to see it delivered. The owner was well pleased, and said it was all right this time. Our man insisted, though, that he should examine the roof before leaving, to see that it was right. When he got up and looked at it, he told our man to look himself. He looked, and was taken all aback to find the roof in the same state as it was before; so he sent the carriage back again and brought the man with him.

Well, in the meantime, I had finished another one of the same style, only it was striped differently. The owner said there was something wrong somewhere, and he was not afraid of the firm, and he would take the other one (this was last Saturday); but, says he, before you send it to me this time, I want you to run it out in the sun to be sure that this roof is all right. The boss and I examined the roof thoroughly, and it was nice. There was nothing, so far as we could see, but what was right. I told the boss to put the job out in the yard, and to let there be plenty of air all around it. Well, instead of that, the boss hitched up to it and drove a little way up the street and back. He was gone only ten minutes, when behold! that roof was in the same state as the first one, with blisters raised up in spots as large as a penny, and smaller ones resembling soap bubbles, only of course they were black.

The boss then went direct to another neighboring city where he had another job of the same style, recently delivered. He examined the roof of that job, and apparently it was all right; and so they run it out on the street and let it stand in the sun (what little sun there was) for a little while. Away went that roof the same as the others!

Then there came a letter from another customer who had bought the same kind of a job, to the effect that the roof of his job had all blistered.

Here, then, are four blistered jobs in all. We have heard of no others as yet. We have given coupés and octagon-fronts tests, painted in the same way, and they are all right.

Now comes the question: What is the cause? I begin to fear there is some put-up job,—probably against me, but God only knows what it is! I believe it is the work of some powerful acid, for it seems to go deep. I have got a chemist to analyze the particles that come off, to see if there is anything in my theory. I cannot begin to explain all by writing; but if, from the above description, you could suggest any possible cause of the trouble, I should be infinitely obliged to you.

ANON, —, Ill.

ANSWER.—This is one of the most mysterious cases that has come to our attention for a long time, and luckily, complicated cases of this sort are few and far between. We are unable to detect the cause, though we might possibly be able to do so, in case we had an opportunity to examine the work.

The first peculiarity is, that heavy jobs, such as broughams, octagon-front coaches, etc., similarly painted, by the same hands, and subjected to the same conditions, did not show any signs of the deviltry named, which was confined to one class of work, namely: light coupé-rockaways, four of which seem to have blistered badly without any special provocation; and a still more singular part (as learned from further correspondence) is, that the painting on the body panels remained perfectly solid, while the roofs alone blistered.

Our first impulse, in answering this inquiry, would be to say that the under-coats (the lead-coats, for instance,) were soft, either one or all as this is one of the prime causes of blistering. The action of the sun and of heat then cause the oil to swell and raise air-bubbles or blisters. Boiled oil is another frequent cause of blistering, but boiled oil was not used in this instance.

We have known roofs to blister as described by our correspondent, after undergoing the process of ironing in the smith-shop, when oil from the shafting dropped upon the carriage roof, which seemed to prevent all subsequent coats from adhering or drying. In such cases, blisters were caused in all such greasy spots soon after the job was exposed to the action of the sun. There is no evidence, however, in this case, that such oil spots were present on the roofs, and these roofs were so thickly covered with blisters that it is not likely that this could have been the cause.

We have personally known our correspondent for many years, and know him to be a first-class mechanic and a perfectly honorable man, so that there can be no question as to good work or honest action on his part.

What, then, remains to be looked to as the probable cause of this singular trouble? We know of none! We give it up! Possibly some of our many readers may be able to explain why the roofs on certain vehicles should blister in ten minutes, while all other parts of the same vehicles, and roofs and all of other vehicles, should not blister at all. Treachery on the part of some evil-disposed fellow-workman is suggested; but in what form could that treachery have been applied in order to produce this result, and leave no trace of the means employed?

A LITTLE girl at Newport, seeing willow phaetons for the first time, exclaimed: "Why, mamma, everybody here rides out in clothes-baskets."

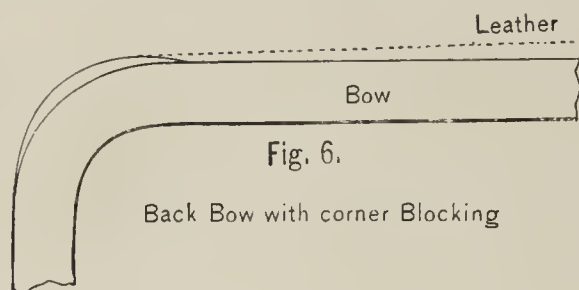


FIRST-PRIZE ESSAY ON TRIMMING PHYSICIANS' PHAETONS.

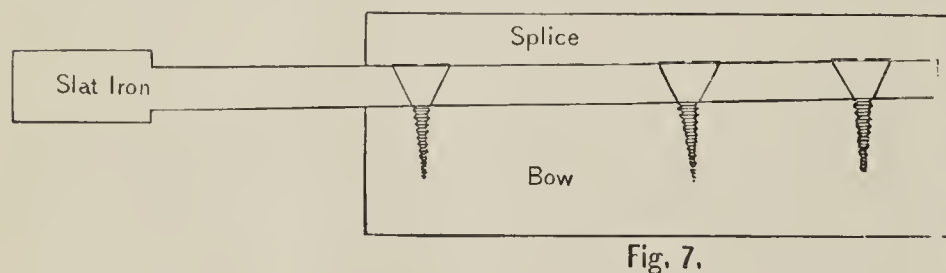
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(Continued from page 189 in last number.)

Having set the head, and given the usual blocking to the bows, I would glue on, over the corner of the back bow, a quarter-inch piece tapered to nothing each way (as shown in Fig. 6), the object of this being to keep



the leather from touching the bow on the sides. Nothing looks worse to a workman than having the bows show through the sides; and, though apparently not generally known, it can easily be avoided by this method. This piece on the back bow will keep it off there, and will not show at all.



The front bow should always be on the outside of the slat-iron (as shown by Fig. 7), and the inside of the bow should be filled with wood, tapered to nothing, and thick enough to line across with the other bows. The front bow carries the leather outside of the rest of the bows. The piece on the corner of the back bow keeps it off from that bow, and the leather will hang clear from top to bottom, without touching the other bows at all, excepting where tacked for a side light. On a close top I should put in four bows, as they add to durability, and also improve the shape of the top, and do not show. Set the props back, one 34 in. from the seat front, and one 33 in. Cut the foundation for the back and sides just to fit. Before the springs are in, lay off in squares to match all around. Let the back and sides stop 3 in. above the seat, that the cushion may go under, and thus make a neater looking job.

We lay off the back in squares, that it may be as soft as possible, for squares of the same dimensions are softer than other shapes. Cut the foundations from buckram. Line with the same, and paste into frames. Let them dry thoroughly, and then they won't contract in working. Cut the leather with $\frac{3}{8}$ in. fullness each way, and no more. Seam out just as little as possible each way, with a ridge on the back side. Put from 6 to 8 in. thickness of hair on the foundation, and line with sheet wadding. Then tuft, and you will have a soft, thin, easy back, with perfect plaits, and one that can never get out of place.

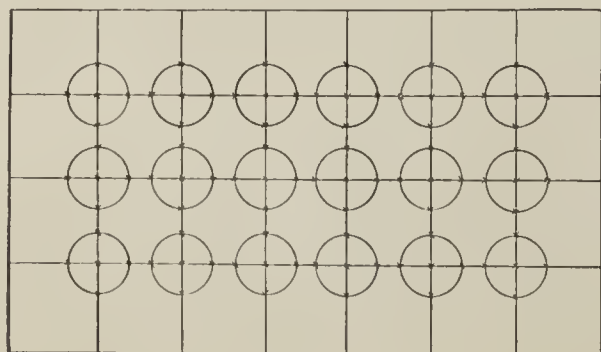


Fig. 8.

Next, fit in the springs, in three rows from top to bottom, the top row 4 in. from the top, and as many as possible sideways. Use a very light spring, and use it full length. Tie the springs as shown in Fig. 8. At every point of intersection draw canvas up, and fasten it at the top, with-

out cramping the springs at all, as per A, Fig. 9. Then sew a piece of canvas on the whole width of the back, as per B, Fig. 9, fill with hair, and draw over as per C, Fig. 9. Take a twine needle, and sew this

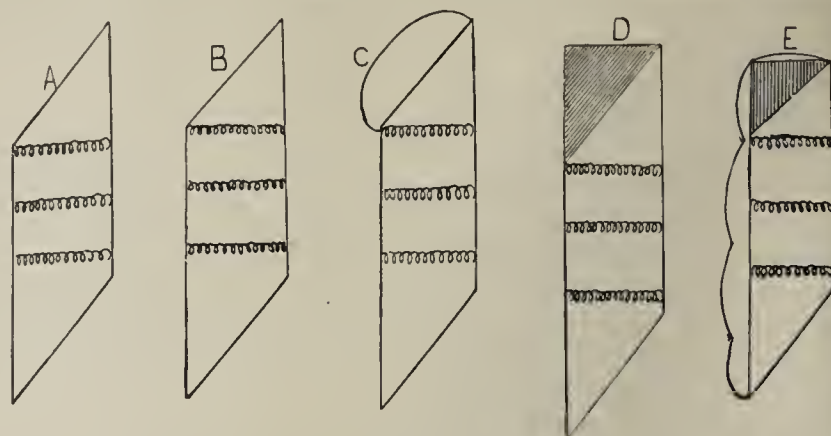


FIG. 9.

corner back and forth until it squares up, as per D, Fig. 9. You will thus have a firm top, and at the same time it will give as readily as the rest of the back.

When the back is fastened in at the bottom, it can be firmly sewed at the top of the roll. Then finish over on the back rail, as per E, Fig. 9. It will make a heavy looking back before the top is put on; but it only

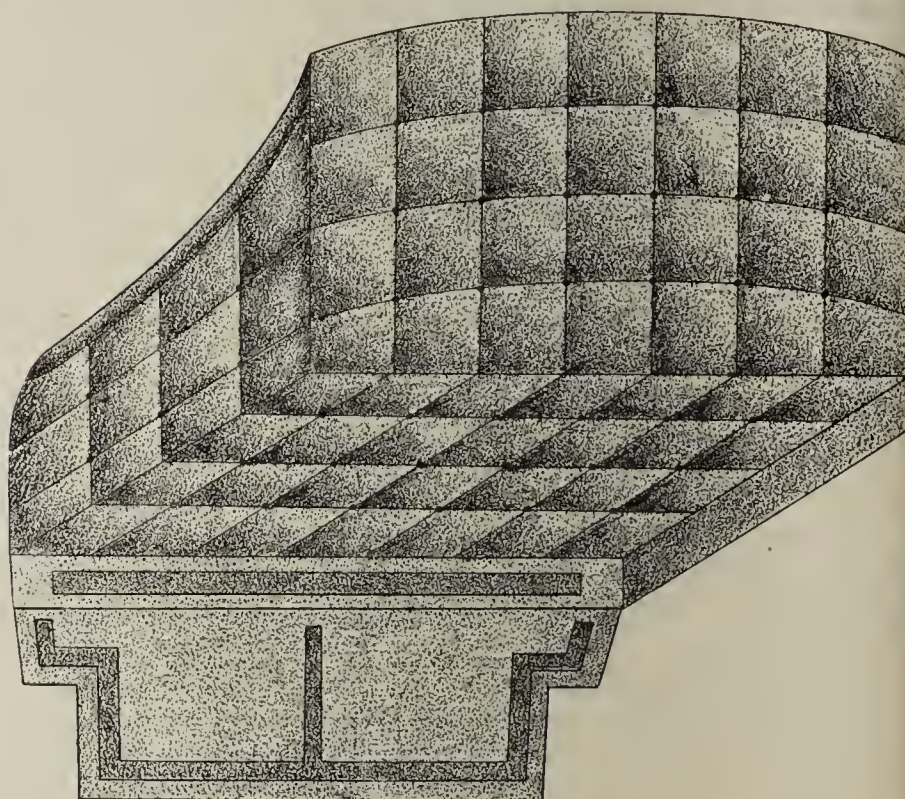


FIG. 10.

shows as per Fig. 10, and will be easier than any sofa to sit against, and just the place for an invalid, if the physician wants to give one an airing. It is a back one can ride against all day without feeling tired.

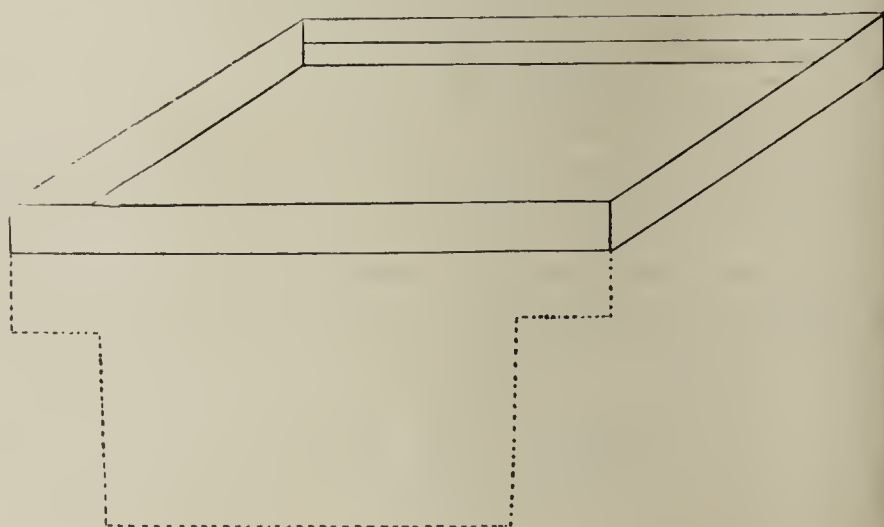


FIG. 11.

Fig. 11 represents a cushion frame for the spring cushion. It can be made easily of any rough stuff, as it is all covered, and it is impossible for it to get apart after finishing. It requires no particular care in making, excepting to get a good fit. It should be made $1 \times 2\frac{1}{2}$ or 3 in. in height. The front and back sides being long, it will have to be stayed, as shown in Fig. 12, by a strip running lengthwise in the middle, and screwed and glued on to keep the sides from springing in. Heavy canvas is used on the bottom of the frames. Then put in 4-inch No. 3 stiff springs, as thick as possible. Sew firmly to the bottom canvas. Stay on the top, as the back in Fig. 8. Make up the cushion top exactly as the back was made, with a foundation of course, and with the size of the frame and top long enough to finish on the sides of the frame.

The seat-fall is made with a foundation, and the leather is sponged and fastened to the front of the cushion frame. The front is then finished with a soft roll. There is no beading on the fall, and it is stitched just as little as possible, the only aim of the stitching being to relieve plainness.

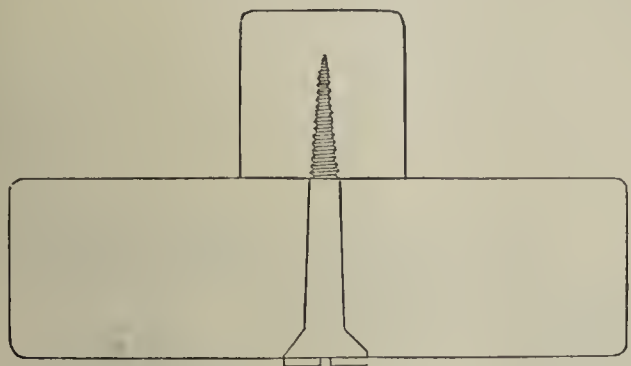
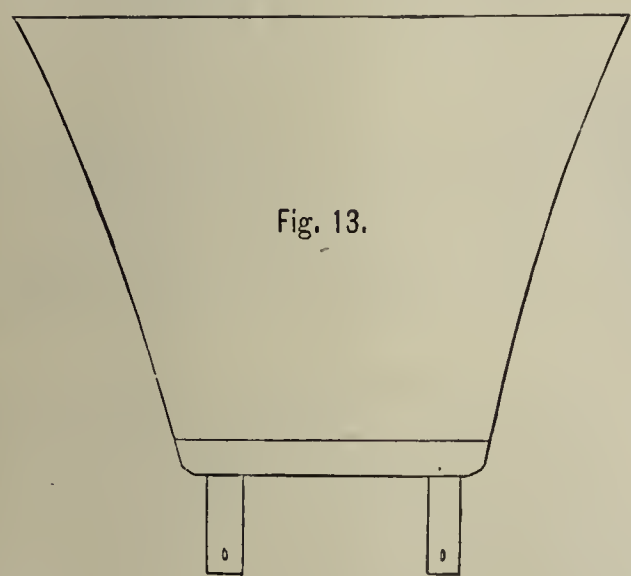


FIG. 12.

The cushion and fall can be readily taken out, when dirty or wet, to be changed or dried. The cushion will not get out of shape, needs no fastening to keep it in place, and it will look firm and new until the leather wears out. It requires but little more work, and costs but little more than a common cushion.



The boot, Fig. 13, is made to do up in the dash, but is arranged to take off readily when extra dirty, which is often the case. Make it as per Fig. 13, with a stiff bottom, made to slip between the dash and the body, and knob it beneath the body.

In presenting any new design for trimming, its novelty and interest must consist more in some new method of working, than in the design proper. Rolls, diamonds, squares, etc., are all familiar, and novelties in design that contain practical worth are hard to find; but I have tried, in the accompanying drawings and description, to present some new ideas concerning points where, it seems to me, they are most needed. What I have arrived at, is a smooth outside finish of the top that will stand wear, without showing the bows, and afford comfortable inside accommodations. If trimmed as directed, the physician who owns this phaeton will want his next one from the same shop, and made in the same way. There are points where workmen of skill often fail, simply for want of experience and knowledge. The details of finishing we are all familiar with.

I hope that, by the above, I may possibly save some poor tired back a little weariness.

BROWN PAPER.

MATERIALS AND METHODS APPLICABLE TO CARRIAGE CUSHIONS.

IN FOUR PARTS: PART IV.

THE province of a trade journal, as I understand it, is not merely to show what is being done, but also to present any reasonable suggestions that may be of interest to the craft. Now, trimmers generally have but little opportunity to deviate from prevailing customs, but they are compelled to follow the dictates of fashion. I candidly believe, however, that a carriage cushion can be made which will possess many more of the desired qualities than those now commonly in use, and the principles and method of executing such an improved cushion I will now endeavor to describe.

DESCRIPTION OF SUGGESTED IMPROVED CUSHION.

A wooden frame is first required, made of the exact size and shape of the cushion. This frame must be firm, and in height about five-eighths the height of the springs. This will give a sufficiently convex surface to the network of cording and covering over the springs, afford ample length, and bring no undue strain upon the covering when the springs are forced down to their greatest capacity.

Springs of sufficient stiffness, temper and buoyancy, and of the exact height, made expressly for the purpose, should next be obtained. Two thicknesses of buckram should then be pasted together, and tacked to the under side of the frame, to form the horizontal bottom surface upon which the springs are secured in their required positions.

To obtain the greatest power and best riding motion of the springs, they should sink squarely, and not lean or fall over when the weight of the occupants is brought to bear upon them. The latter evil may be averted by carefully applying a network of cording over their surface, and the most satisfactory manner we have as yet discovered is to omit tying any knot in the first courses, namely the square lashing, but to merely loop the cord over the wires. Each spring is then separately tested; and, as no knot is present, it can be readily shifted into its proper position. After all the springs have been tested, then the diagonal cords may be securely knotted; and, to hold them still more securely, they can then be stitched to the covering with tufting twine, which can readily be accomplished by the aid of a half-circle needle, the springs being previously well muffled.

It should be observed, in testing, that the center rows of springs, to enable them to sink square, are required to stand exactly vertical, while the outside rows all around must lean slightly toward the frame.

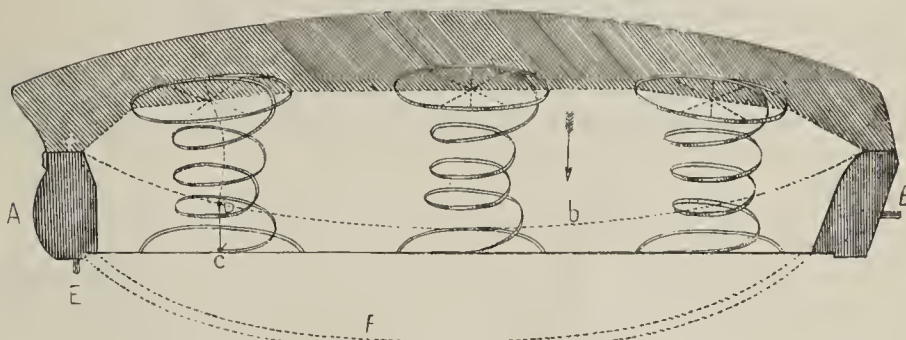


FIG. 3.

The accompanying cut, Fig. 3, represents a sectional view of the cushion I recommend, or a view such a cushion would present if vertically cut through, and a part removed. The diagonally shaded upper portion represents the thickness and shape of the necessary upholstery at the surface. The point A shows the front and section of the frame; and the opposite extremity the back part, which is usually required to flare to fit against the back bar.

Three rows of springs are here shown in position, and the dotted line *b* represents the position the convex surface would assume when the greatest pressure is brought upon them, as indicated by the arrow. Let a vertical line be drawn from C, the bottom center of the front spring, to D, or the position the opposite central point would assume when compressed. From point X on the frame, marking the point where the cords are secured, its length indicates the track this would follow back to the surface position, as shown by the curved line, which indicates that these springs must slightly lean toward the frame.

The upholstery over the surface of the springs should be entirely plain, and without any tufts. The sides should be built up square, and with room to recede at the back, but presenting an acute angle at the front. The method of applying this upholstery has already been fully described in an article on plain trimming which appeared in the October *Hub*.

Cloth trimming material would be well adapted to this style of upholstery, as the position, being horizontal, naturally attracts and retains more dust than other portions of the upholstery; but by omitting all tufted squabbing, it can readily be kept clean; and it would present a neat appearance, as is proved by plain outside dicky cushions, where elegance has only been equalled by the hammercloth. Another advantage would be that, in case the material should become spotted or soiled, it could be readily replaced. It will also be noticed that the surface of the upholstery is convex for the purpose of obtaining sufficient stuffing at the center and to present a more level surface by the sinking of the springs.

By this method, no impediment is offered to the free action and play of the springs by tufting or crowding in inelastic stuffing around the sides, and no excessive compression of the springs is required, but they are allowed to gradually expend their power and are not brought to a sudden stop.

Plain upholstery cannot be satisfactorily applied without the aid of some solid substance that will resist the strain and tension of the materials, and this substance is here provided by this spring frame, by whose aid a good fit and perfect symmetry are assured. It also presents a superior appearance as compared with the broken lines which all tufted work soon presents. This frame presents no impediment to the free action of the upholstery, and prevents all liability of the occupants of the seats coming in contact with the solid substance.

A rabbet is required around the top edge of the frame, of sufficient width and depth to provide a good finish for the trimming materials; and dowels are placed at a convenient point at the bottom E, with correspond-

ing holes in the seat-board and back-bar for the purpose of holding the same in position in the body.

As I have before mentioned, I see no reason why cushions should always present the same general appearance, and should always have lace fronts. The present styles of laces are not particularly decorative, and, owing to their width, it might prove difficult to adjust them readily to these frame fronts. Let me suggest a substitute. To finish this front with a smooth roll would not answer, as the angle edge of the surface upholstery already presents such an appearance, and the front edge and bar of the seat-board are usually provided with such a roll, and would therefore be completely overcrowded and in bad taste. To finish between the two with a light puffing is also undesirable, as the material is not well adapted for that. Some substitute seems required, and my suggestion is this. Ornamental wood moldings have been introduced around the doors and lights of closed carriages. Why not advance a step farther, and make the front of this spring frame of ornamental wood, tastefully carved or beaded; or, if preferred, use merely a plain swelled polished surface. This, placed between the two plain rolls, would, I believe, present a neat and creditable appearance.

Trimming materials of different substance or texture frequently require different treatment, and I would therefore hesitate about recommending a plain, smooth top, especially in satins, unless the workman is well skilled in the nature of the goods, as it is an exceptionally difficult task to prevent tacks or stitches being visible over the whole surface of the work. An objectionable feature would also be present if we were to use morocco skins, as they are of insufficient size and would require piecing.

I have mentioned that carriage bodies having some space beneath the seat-board are best adapted for the use of springs, as the space can be utilized to afford room for them. No material difference in the frame would be required except more attention to its strength. A webbed bottom could be substituted for the use already mentioned, if preferred, and it should project into the space, as shown by the double dotted line F. Much higher springs could be introduced, especially in the center row, and more elasticity could thus be obtained.

We, Mr. Editor, who work at the bench lack practice in putting our thoughts on paper, but I trust that in the above I have made myself understood. I will only repeat that I confidently believe that the spring cushion, properly planned, and honestly executed after the principle and method which I have here endeavored to describe, would combine all desirable qualities a spring cushion is designed to possess, and I beg, therefore, to commend the above suggestions to fellow-members of the craft.

H.

THE END.

SEWING MACHINES FOR CARRIAGE TRIMMERS.

BIRMINGHAM, ALA.

EDITOR OF THE HUB—DEAR SIR: I am in need of a sewing machine. Please advise me which is the best machine now in use for trimming. Please state address, and price of the same.

Very truly yours, WM. R.

ANSWER,—Send for catalogue and price-list to the Howe Sewing Machine Co., Bridgeport, Conn., who supply machines specially adapted for the use of carriage trimmers.

HINTS TO TRIMMERS HOW TO SAVE TIME.

As a carriage trimmer, I save considerable time by winding my ball-thread upon spools by the aid of the sewing machine, and I then have no trouble about knots and tangles. To do this, I simply take an empty spool, shove an awl or small stick through the hole in the spool, and then hold the edge of the spool against the face or edge of the balance-wheel of the machine, and then go ahead winding. Trimmer, try this hint!

I think, also, I save a great deal of time in the course of a year by not using a belt to wind my bobbins. My machine is a Singer. I take the bobbin winder off, and set it upon the top of the table loosely, which brings the grooved band close to the balance-wheel; and, by putting a rubber ring in the groove, and holding it to the balance-wheel with one hand, the other hand is left free to guide the thread on the bobbin.

L. S. S.

LARGE OR SMALL HIDES.

EDITOR OF THE HUB'S TRIMMING DEPARTMENT—DEAR SIR: Which are the cheapest for builders to use, large or small hides of top leather? And why? In this part of the country (Ohio) the dealers sell small hides for less than large ones, per foot.

L. S. S.

ANSWER.—For the general run of work, large hides have been found to prove cheapest, although costing a trifle more by the foot. One hide will be sufficient for a top, but very often the flanky part or a small patch

has to go in with it. The higher price is owing to the greater scarcity of large hides.

Small hides will produce a finer finished top, as the grains on small hides are more uniform; while the grains of larger hides, and especially on the flank portions, are often very coarse and cloudy. Smaller hides, although costing less by the foot, are apt to be more expensive in the end, as having more waste. This objection is largely overcome by manufacturers having an extensive business, where the hides are so ordered as to suit requirements, and where, consequently, but little waste is occasioned. In the latter case, the use of small hides is the cheapest.



THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paintshop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Elysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.

TRADE GOSSIP OF THE PAST MONTH.

THE second annual exhibition and performances of the National Horse Show Association of America, held at Madison Square Garden in this city, closed amid great enthusiasm on Saturday evening, May 31st. We are sorry to learn that this second season resulted in loss to the stockholders. The shortage is reported at \$7,000. If profit alone were the object of the managers, there is every reason to believe that the account might easily have been turned in their favor by selecting an autumn rather than a late spring month, and also by reducing the price of reserved seats, and thus admitting a great middle class who perhaps preferred to retain their \$1.00 to \$2.00 for the next walking match; but high prices, while they no doubt reduced the total of receipts, resulted in calling together audiences of the highest respectability. "Horse Show Week" may now be set down as one of the events of the New-York calendar, and it promises to become still more noteworthy year by year, as its various attractions are more fully appreciated by the public generally. The chief event of this season was the extraordinary performance in leaping by Fred. Gebhard's *Leo*, which beat the record out of sight by clearing the bar at 6 ft. 6 in. The display of carriages, surrounding the ring, was highly interesting, including exhibits by R. M. Stivers, A. S. Flandrau & Co., J. M. Quinby & Co., Brewster & Co., Taylor & Schwarz, Troy Carriage Works, and others. The New-York Cab Co. exhibited

specimens of their latest styles of Hansom Cabs, including one built by Hincks & Johnson, of Bridgeport, Conn., and a newly imported one built by J. A. Lawton, of Liverpool, Eng. The former affords more comfortable seat-room, and is more finely finished; while the Lawton Cab, with its circular glass front and glass sides presents an attractive exterior appearance, and promises also to become popular when placed upon our streets next month.

* * *

THROUGH the courtesy of Chief-of-Police McKinnon, of Belleville, Ontario, we have received a photograph of the traveling swindler, Mark (or Marcus) R. Lazier, from which the accompanying engraving has been reproduced. Mr. Austin Huntington, who acted as counsel for the committee of American varnish-makers in pressing the indictment against Lazier, finds this a very fair likeness; and it will no doubt enable many of our readers to identify the convict now serving a three-years' term of imprisonment in the Kingston Penitentiary, as the

gentlemanly-appearing varnish agent, with small feet, who so plausibly duped them out of \$75 on some former occasion. For nine years past this confidence operator has been preying upon the carriage-makers of this country and Canada; and though the mills of the gods have at last ground him exceeding small, we must confess that they ground with painful slowness. Nine times in nine years he was arrested, including five times during the year 1876, in the following order, namely: at Picton, Ont.; Ottawa, Que.; London, Ont.; Buffalo, N. Y.; Cleveland, O., and Detroit, Mich.; on February 17, 1877, he was convicted at London, Ont., but his sentence was merely nominal; warrants afterward followed him thick and fast, and he found it necessary to cover his tracks more adroitly, but he was thrice again arrested, namely: at Owen Sound, Ont., some place in New-York State, and Lansing, Mich.; then came his final arrest, and his subsequent conviction in April of the present year. Carriage-makers, one and all, may well and properly congratulate themselves upon the downfall of this man; and their thanks

are due, not only to the Canadian authorities, but to the following representatives of the American varnish trade, who gave substantial aid by collecting testimony and arousing public opinion to an appreciation of the importance of the case, namely: Messrs. John W. Masury & Co., Parrott Varnish Co., E. Smith & Co., Valentine & Co., Murphy & Co., A. Keppelmann, Clarence Brooks & Co., Minett & Co., and Felton, Rau & Sibley. These firms were only indirectly sufferers by reason of Lazier's frauds, but they felt it due to their customers to offer them whatever protection lay in their power, and they did their part courageously and well. It is to be hoped that we may now enjoy three years of grace. In a letter received by us last month from Chief-of-Police McKinnon, he says: "Lazier is not taking kindly to his incarceration, but lives in hopes that influence of friends will get him off before his term expires. I don't think they will!" We sincerely echo the last sentiment, for the sake of all directly concerned, and for that of the carriage and varnish trades at large.

* * *

THE American carriage trade has some claim to the lead in respect to variety and novelty in advertising, but we have received

from Mr. Frederick W. Lucas, carriage-builder, of Brixton Hill, London, England, an illustrated card prepared by him for distribution at the exhibition held at Crystal Palace, in April last, which, in our opinion, surpasses anything of the kind thus far developed on this side of the Atlantic. It consists of a substantial card, eight inches square, with beveled and gilded edges, and bearing upon its face what appears to be an albertype or platinum print, produced from direct photography, and with unusually clear results. The design is original in treatment, consisting of a carriage wheel seven inches in diameter, and having six spokes, the hub being supplanted by a circular business card of Mr. Lucas, while the spaces between the spokes are occupied by charmingly executed interior views of his body, carriage-part, wheel, smith, paint, and trimming-shops. Among recent advertisements by carriage-builders, this is decidedly the most noteworthy, being novel, ingenious, characteristic and highly artistic. If we mistake not, the familiar figure of Mr. Lucas

himself appears in the view of the carriage-part shop.

* * *

THE May number of Mr. Cooper's *Art Journal* contains the report of a lecture by Mr. Henry Julian, of Bolton, Eng., delivered on the 29th of April, at the Westminster New Town Hall, London, on the subject of "Art applied to Coach-building." We have read this lecture with profound interest and great pleasure. It gives evidence that Mr. Julian has not only closely studied his subject, but that he has a natural aptitude for appreciating the principles of taste which he enunciates, and their practical application to the needs of the trade he so worthily represents. In spite of his detestation of the American square-box buggy, which he characterizes as "stiff, square and wall-sided, and ugliness intensified," we hope he may feel drawn to visit this country sometime, and give us the benefit of his experience and taste as a critic who evidently has a right to criticize. We can assure him that every American reader of his admirable lecture will take pleasure in giving him a cordial welcome.

* * *

THE June meeting of the National Republican Convention in Chicago naturally attracted wide and earnest attention, and possibly interrupted the movements of trade to some extent; and the same conditions will remain in force until after the July convention of the Democratic party,—and, indeed, until after the November elections. We cannot but think, however, that the hue and cry of "off-year for business," whenever a Presidential election is in progress, is largely sentimental. If our mode of government is founded on correct principles—and there is no doubt in our mind about that—then the people's voice should be trusted until it has been proved untrustworthy; and as soon as that is patent, we believe the people can be trusted to promptly and quietly oust the wrong and reinstate the right. We incline to the belief that it would have been better, for some reasons, if the Presidential term had been set at six or eight years, rather than four years, thus lessening the frequency of general elections; but that would probably only aggravate the depression of the off-year when it came. The fact probably is that, if we had a general election every year, we should soon accommodate ourselves to the condition, and then, least of all, experience any wide-spread interruption; while the



MARK RAYMOND LAZIER, THE TRAVELING SWINDLER.

Tried at Simcoe, Ontario, on April 7th, 1884; convicted of obtaining money under false pretences; and now serving a three-years' term of imprisonment at the Kingston Penitentiary.

(See Description under "Trade Gossip," on this page.)

degree of infrequency properly emphasizes the importance of the result, and correspondingly increases the periodic disturbance. We know of no just reason, however, in the present condition of this country, why the Presidential contest of 1884 should be credited as the cause of any real or fancied depression in general business.

* * *

THE carriage trade of New-York City, particularly in the larger factories and repositories, has remained inactive during the past month, and a dull summer is anticipated. The disturbance in financial circles, whereof New-York is the chief center, sufficiently explains this local paralysis. As to the country generally, the reports are widely varied, ringing the changes all up and down the gamut, from the carol of "Good, better, best!" down to the growl of "Couldn't be worse! Couldn't be worse!" After patiently studying our two hundred fresh reports, received from leading trade representatives of nearly every State, we fail to discover any underlying law explanatory of their variations, further than the general one that specialties, in the hands of energetic men, who are not only good manufacturers but good salesmen, hold the lead in activity; while houses of the old school, content to wait until customers come to them, are having plenty of time to chew the cud of dyspeptic reflection. In view of the phenomenal complexity of the situation, we congratulate ourselves on being able, this month, to substitute an assortment of detailed reports and opinions of the carriage-builders themselves, in place of any one individual opinion, which latter, however condensed and well-digested, could only inadequately represent the present situation.

* * *

WE beg to request that our subscribers and advertisers will hereafter make their checks (the more, the better) to the order of *The Hub*, instead of the Hub Publishing Co. of N. Y., and to similarly address their letters to us. The reason for this request is simply this. We recently added steel-plate engraving and printing to our business, as a new and distinct department. This seems already an assured success, but our late corporate title has been found somewhat of an impediment to the development it promises, and we have consequently received authority from the Supreme Court of the State to change our name to The International Bank Note Co. *The Hub* remains the same *Hub*, with the same owners, executive officers, editors and office workers, and we make the above request simply from the desire to keep our publishing business quite distinct from our new and growing steel-plate department.

TUBS WITHOUT BOTTOMS.

IF Mr. J. C. Cooper, proprietor of our London contemporary, should pursue his editorial investigations with greater care, he might have less to remark, but the value of his remarks would be enhanced. In his May number, for instance, he devotes three columns to abusing *The Hub*, simply because we disproved his recent assertion that photographs of carriages were N. G.; and in the course of this rejoinder he indiscreetly hazards further assertions that are equally unfounded.

Now, although we haven't the least objection to being made the object of Mr. Cooper's abuse—considering it, as we do, his sincerest form of flattery—we beg to suggest that, for his own sake, he ought to pay some regard to truth. Here are his flattering references to *The Hub*, above alluded to; and here, for example, are several noteworthy specimens of his rashness in attempting to float his arguments in tubs utterly without bottoms. He says:

(1.) We are in a position to endorse all that *Justitia* has advanced with regard to the circulation of *The Hub* in this country; but with regard to its piracies his indictment is incomplete. Not only has it copied and imitated our working drawings and our fashion plates, but drawing in perspective was first adopted by the *Carriage Monthly*, and the idea of perspective drawings given by *The Hub* is copied from that journal.

(2.) They are arranged in a manner quite peculiar to the *Carriage Monthly*.

(3.) We have not yet been favored with this kind patronage of *The Hub*, so far as our colored perspective drawings are concerned, but in due course we fully expect to be. We have already given several, and we intend to continue to give them in obedience to what we observe to be a growing taste for them among our subscribers; and it will be strange indeed if the *Hub* editor does not presently discover that these colored perspectives exactly suit his purpose, proceed to purloin them, and proclaim from the house-top a fresh evidence of his originality.

(4.) We once heard a good anecdote of a would-be dramatic author, who, in despair of writing anything original, exclaimed: "Curse that Shakespeare! he has robbed posterity of all its best ideas." The editor of *The Hub* has not even the modesty to admit so much, for he appropriates the ideas of others, and has the effrontery to flaunt them as his own.

We cheerfully take up the glove thus thrown to us. These are matters not of vague guesswork, but of recent and easily ascertained history.

TUB NO. 1.

Is it true that "the idea of perspective drawings given by *The Hub* was copied from the *Carriage Monthly*?" The facts appear in black and white in the files of the two periodicals named, and are easily attainable. What, then, are these facts?

At what date did *The Hub* make public its first perspective drawing of a carriage? Answer: On June 15, 1872, when it published a Coupelet, drawn by Adolphus Muller.

And when did the *Carriage Monthly* make public its first perspective drawing? Answer: The first one we discover is that of the Brewster Windsor Wagon, published in its July issue, 1876.

How many perspectives had *The Hub* published previous to July 1, 1876. Answer: Eighteen, *i. e.*: Coupelet, June, '72; Goold Cutter, Oct., '72; Jaunting Car, April, '73; Young Coupelet (two views), Aug., '73; Square-box Buggy, Nov., '74; Hooker Phaeton, Dec., '74; Jagger Wagon, June, '75; Portland Cutter, Oct., '75; Albany Cutter, Oct., '75; Kimball-Brewster Cutter, Oct., '75; Five-glass Landau, Jan., '76; Dog-cart, Feb., '76; Crane, Breed & Co. Hearse, March, '76; Seven-glass Landau, May, '76; Surrey Wagon, May, '76; Stivers Wagon, June, '76; and Brewster Windsor Wagon, June, '76.

From whom did the *Carriage Monthly* obtain the Brewster Windsor Wagon which it published on July 1, 1876? Answer: It borrowed the cut from *The Hub*, and the same cut will be found in *The Hub* of the previous month, namely: June 1, 1876. Does Mr. Cooper doubt this statement? Let him compare the engravings. The drawing referred to was made expressly for *The Hub* by Mr. Adolphus Muller, after a sketch by Mr. T. H. Wood, draftsman with Messrs. J. B. Brewster & Co.

When did *The Hub* adopt perspectives exclusively? Answer: It has never done so. We began using them in 1872, when our draftsman, Mr. Muller, was engaged in developing his so-called "compromise system of perspective;" and we have continued to use them in increasing numbers ever since; but we still present plain side elevations and working drafts, and have no intention of adopting perspectives exclusively.

When did the *Carriage Monthly* adopt perspectives exclusively? Answer: Never, so far as its files bear witness.

Who first popularized perspectives? Answer: Mr. Adolphus Muller, of New-York, while editor of *The Hub's* drafting department, which position he continuously filled from 1870 up to the time of his death in 1882.

Is it not a fact that the perspectives by Mr. Chas. Heergeist, published by the *Carriage Monthly* in its November issue, 1878, were the first of any consequence that were made public through any trade journal? Answer.—It is *not* a fact. As already stated, we had been experimenting in this direction for six years previously, and had published eighteen similar perspectives before July, 1876, and a total of about forty up to November, 1878. Furthermore, the first two perspectives by Mr. Heergeist appeared not in the *Carriage Monthly*, but in *The Hub*, several months before he joined the former journal. Does Mr. Cooper doubt this statement? Let him turn to the January *Hub*, 1876, and there he will find a design entitled: "Perspective Drawing of Crane, Breed & Co., Seven-glass Landau;" and a letter accompanying shows that it was expressly prepared for *The Hub* by Chas. Heergeist. Again, in the May *Hub*, 1876, he will find another, entitled: "Crane, Breed & Co. Seven-glass Landau; Perspective View, drawn by Chas. Heergeist, of Cincinnati, O."

It is not then a fact that "the idea of perspective drawings given by *The Hub* was copied from the *Carriage Monthly*." Answer: It is not; and if any copying of idea has been done, it must have been the *Carriage Monthly* that did it; but this we do not claim, because C. & D. Cook, of New-Haven, and the *New-York Coach-Makers' Magazine* (afterward absorbed by *The Hub*) published perspectives before either *The Hub* or the *Carriage Monthly* did.

TUB NO. 2.

Mr. Cooper's second assertion may be disposed of still more speedily.

Is it true that the fashion plates in *The Hub* are "arranged in a manner quite peculiar to the *Carriage Monthly*." Answer: It is not, and any printer ought to know this.

Is there anything "peculiar" in the arrangement of the *Carriage Monthly's* fashion plates? Answer: Nothing at all! The same

"peculiar" arrangement will be found to characterize the fashion plates which appeared in the *New-York Coach-Makers' Magazine* from its start on June 1, 1858, up to the time of its absorption by *The Hub* on March 15, 1871.

TUB NO. 3.

Mr. Cooper's third assertion rather staggers us, we must confess,—but merely from its cool impudence. The idea of his colored perspectives, as exemplified in his May issue, 1884, being likely to be copied by us, after we have been presenting similar colored perspectives monthly ever since December, 1882, is certainly audacious, and we rather admire it for that quality; but further than this, it is the most harmless description of Quaker gun. We published 6 colored perspectives in Vol. XXIV, 25 in Vol. XXV, and have already published 11 in the current volume, or a total of 42 up to date. If there has been any copying of idea in this respect, it is certainly Mr. Cooper who has done it.

* * *

And now we come to the venerable story wherewith Mr. Cooper terminates his remarks. This strikes us as a particularly unfortunate illustration, for the reason that the shoe so clearly fits Mr. Cooper's own foot. It is Mr. Cooper, recollect! who at this late day claims to have originated colored perspectives. He did not originate them, for colored perspectives are an old idea, long worked by Mr. Brice Thomas and other French draftsmen; and it is therefore Mr. Cooper himself who, to echo his own elegant phrase, "appropriates the ideas of others, and has the effrontery to flaunt them as his own."

* * *

In concluding, we beg merely to add that we have little hope and less desire that Mr. Cooper will be convinced by the above array of facts, or that he will show any disposition to retract his unfounded assertions which have called forth this response. We very well know that Mr. Cooper is quite another kind of a sinner. Indeed, if he should admit himself to be convinced by any logic of ours, we should begin to feel a suspicion that the logic might be defective.

"NEARLY SIMILAR."

NEW-YORK, May 8, 1884.

TO THE EDITOR—DEAR SIR: I notice in recent advertisements of the two rival Brewster houses, appearing in the *New-York Herald*, that each of them warns the public against another house "having a nearly similar name." Is the expression "nearly similar" correct, in your opinion?

I make free to address to you the above inquiry for the reason that I notice, in the May number of *The Hub*, a quotation from one of your London contemporaries (foot of page 93) in which the expression "exactly similar" is used.

I had supposed that the word *similar* meant *very nearly like*, in which case both the above expressions would seem incorrect. Please enlighten me.

Yours truly,

CRITIC.

ANSWER.—If "Critic" will refer to any standard dictionary—the "Imperial," for instance, or Webster's—he will see that *similar* means not only "exactly corresponding, precisely alike," but also "somewhat like, resembling in many respects." If we use the word, then, we may modify it by an adverb like *nearly*, *exactly*, etc., to make the precise meaning clear. Personally, we should prefer to write "nearly the same," or "almost the same," rather than "nearly similar;" but this last expression cannot be called incorrect.

We may add that words which appear to have a fixed and unqualified meaning often come to be used in a somewhat indefinite or qualified sense. *Perfect*, for example, is a word which grammarians say does not admit of being "compared;" we cannot say that a thing is "more perfect" or "most perfect." And yet there is abundant authority for these comparative and superlative forms. We call things *perfect* which are not absolutely so; and those which come nearer to absolute perfection may therefore be called *more perfect*. There is also a rhetorical emphasis in the use of such comparatives and superlatives. Shakespeare uses both *perfecter* and *perfectest*: the latter three times; and only a pedant would find fault with such a sentence as "Silence is the perfectest herald of joy; I were but little happy if I could say how much"—(*Much Ado*, ii, 1, 317). Who does not feel that it would be a *less perfect* expression of the thought to say "the perfect herald of joy," for the sake of keeping peace with the grammar-mongers?

A LIST of 319 varieties of insects that have been preying upon the trees and shrubbery of Central Park, New-York, is appended to the last report of the official entomologist, E. B. Southwick.

OPEN BALLOT FOR NEXT PRESIDENT OF THE C. B. N. A.

SECOND BULLETIN, JUNE 20, 1884.

WE present below the second monthly bulletin of our test ballot, intended, as we have already explained, to call forth expressions of opinion as to desirable Presidential candidates for the consideration of the Carriage Builders' National Association at its October election. This bulletin includes all votes deposited with us up to June 20th, or thirty-one more than were recorded last month.

HENRY C. MCLEAR, of Wilmington, Del.

(One of the founders of the Association, and its present President, on reëlection. Originally nominated by Mr. Lowe Emerson, of Ohio, in 1882, when Mr. Clement Studebaker, of Indiana, declined election)..... **26+**

LOWE EMERSON, of Cincinnati, O.

(Present Vice-President, and member of Committee on Technical Education)..... **15**

JOHN W. BRITTON, of New-York.

(One of the founders of the Association, its third President, twice reëlected, and now member of the Executive Committee)..... **11**

CLEMENT STUDEBAKER, of South Bend, Ind.

(Founder, and Chairman of the preliminary meeting in 1872, preceding formal organization; unanimously nominated as Presidential candidate in 1882, but declined election)..... **10**

C. D. FIRESTONE, of Columbus, O.

(Present member of Executive Committee)..... **8**

WILLIAM D. ROGERS, of Philadelphia, Pa.

(Founder, and present member of the Executive Committee)..... **6**

HENRY TIMKEN, of St. Louis, Mo..... **5**

WILDER H. PRAY, of New-York.

(Elected Secretary of the Association at its first Convention in 1872, and served continuously until 1882; at present a member of the Executive Committee)..... **3**

CHAUNCEY THOMAS, of Boston, Mass.

(Present member of Committee on Technical Education)..... **3**

CHARLES P. KIMBALL, of Chicago, Ill.

(Founder, and first President of the Association, twice reëlected)..... **2**

RUFUS M. STIVERS, of New-York.

(Founder, and present Chairman of the Executive Committee.) **2**

FRANK H. HOOKER, of New-Haven, Conn.

(Present Secretary and Treasurer of the Association, twice reëlected)..... **2**

SCATTERING.

(Including 1 each for Wm. P. Sargent, Geo. A. Ainslie, Hugh Johnson, J. W. Gosling, Wm. T. Haydock, Henry C. Valentine (not eligible), Geo. M. Peters, Geo. C. Elliott, S. P. Darlington (not eligible), Hugh Duffy, Geo. H. Burrows, Henry P. Jones (not eligible), and Geo. W. W. Houghton (not eligible)..... **13**

INDECISIVE.

(Including those who express no choice, or request the Editor to cast a vote for them, or who say "Our choice is the Association's choice,"..... **47**

Total number of votes already cast, as above enumerated..... **153**

No noteworthy changes are observable in this bulletin, as compared with that of last month, beyond the strengthened position of the popular candidates, all of whom are identified with the present management of the Association's affairs, and none of whom, so far as our information extends, have received from any member even a hint of unfavorable criticism. Indeed, it would seem very clear that either one these popular candidates, duly presented to the convention by the Committee on Nominations, could be promptly elected; but there seems to be a growing feeling in both the West and the East, that so energetic and capable an executive officer as Mr. McLearn should by all means be retained, if possible, until the close of the customary three-years' term. We are glad to see that our three contemporaries, *Coach, Harness and Saddlery*, the *Carriage Monthly*, and the *Blacksmith and Wheelwright*, have all pledged themselves to the support of Mr. McLearn.

"BAD."

THIS is what *Coach, Harness and Saddlery* has to say in response to the question, "How's Trade?"

"In the New-York carriage market the demand has been moderate throughout the entire week. In most cases sales have been less satisfactory than they were at the corresponding period last year, and some who claim to be leaders in the trade have cut prices. Common grades have sold fairly well, but buyers are demanding low prices. There has been a marked falling off in the call for two-wheel carts of the buggy type, but village carts, whitechaps and tilburys are selling freely considering the times. Dealers in materials report trade slow and unsatisfactory, and do not anticipate a change until time for the opening of the fall trade."—*Coach, Harness and Saddlery*, New-York, June 14th.

HOW'S TRADE?

BULLETIN NO. II.

RESPONSES FROM 200 CARRIAGE, WAGON AND SLEIGH MANUFACTURERS.

OUR last number contained a four-page review of the present condition and future prospects of the American carriage industry, as viewed from the standpoint of the dealers in carriage supplies, one hundred and twenty-seven of whom mounted *The Hub's* witness-stand and presented their testimony. Subsequent correspondence shows that these witnesses have had a large and appreciative audience; and although individual reports were conflicting in the extreme, it seems to be generally admitted that these averaged up pretty accurately when the general results were epitomized by us as follows, namely: In New-England, "somewhat better than fair;" in the Middle States, "good;" in the Southern States, "somewhat less than fair;" and in the West, "fair."

As we remarked in connection with our previous bulletin, it is of course possible that the carriage manufacturers themselves might happen to complain of *dull* trade, at the very time that supply houses were congratulating themselves upon a *fair* or *good* trade, for the reason that manufacturers may give large orders for supplies which subsequent events prove to be not justified by the demands of the carriage market. Our last month's bulletin does not, therefore, conclusively answer the question "How's Trade?" as viewed from the standpoint of the carriage, wagon and sleigh manufacturers, who are themselves the most reliable witnesses, after all; and here, below, they present themselves to testify in their own behalf.

One further suggestion seems necessary before they begin to speak. Those bearing good news are naturally most willing to testify, and, while every witness who appears seems to deserve credence, and no witness has been refused a hearing, we cannot but fear that many others may have held their peace simply because they had nothing encouraging to report; and we are consequently inclined to discount the general averages which we hereafter name, as probably somewhat brighter than the facts of the case would justify, were the number of witnesses largely increased.

NEW-YORK STATE.

NEW-YORK CITY AND BROOKLYN.

GOOD.—"Business with me is good."—J. CURLEY, 244 State-st., Brooklyn, N. Y.

VERY GOOD.—"Business with me is very good."—C. P. KETTERER, 138 S. Fifth-ave., New-York City.

BAD.—"Orders for new work are unusually light; repairing, good."—ANON, New-York City.

GOOD.—"Trade in new work is good,—almost up to last year; while repairs were never so good,—indeed, a regular boom."—ANON, New-York City.

FAIR.—"In reply to your inquiry, we beg to say that we are working 6 forges, and employing about 75 men, mostly on heavy work. Trade is fair."—H. W. & Co., New-York City.

VERY GOOD.—"I work 7 fires, 16 woodworkers, and 10 painters; and make a specialty of trucks, business wagons and carts for city use, wagons, carts and wheels for export."—JOHN L. KIPP, 163 Eldridge-st., New-York City.

GOOD.—"Business is good, with 5 forges and 35 men employed. We build coaches, coupés, broughams, and all kinds of light work for road purposes, including our own unexcelled buckboard."—COE & MERRITT, Brooklyn, N. Y.

VERY GOOD.—"I am happy to be able to state that the carriage trade with me is very good. I have sold ten per cent. more than any year since I have been in the business. I sell good medium work."—JOHN MOORE, 57 and 59 Warren-st., New-York City.

FAIR.—"Business is very fair with me. I work 4 forges, and build coaches, coupés, broughams, landaus, landaulets, business and doctors' phaetons, side-bar road wagons, village carts, etc."—FRED'K R. WOOD, 219 and 221 West 19th-st., New-York City.

VERY GOOD.—"Our business is extra good, employing 13 men, or 8 in the smith and wood-shops, and 5 in the paint-shops. We build mostly business wagons to order, besides repairs of all kinds of vehicles, and blacksmithing."—NEWKIRK & GREEN, New-York City.

FAIR.—"Our business is mostly on repairs and altering new carriages coming from out of town. We have six floors full all the time, and we pay out for labor weekly from \$350 to \$400. Had we more room, we could do much more."—DAY & SON, 165 Crosby-st., New-York City.

FAIR.—"Business with me is very fair, considering the times. I employ at present 27 men, and build vehicles of all descriptions, barring coaches and landaus, but only to order, as my specialty of repairing will not admit of anything for stock."—E. CALLANAN'S SON, 57 W. 44th-st., New-York City.

GOOD.—"Business in the factory has been very good so far this season, and I am working 20 men full and overtime, on special orders and repair work; but I am sorry that I cannot give so good a report of sales from stock, which have been rather slow, with a decided tendency towards lower prices."—F. W. WOOD, 1565 Broadway and 104 East 27th-st., New York City.

VERY GOOD.—"Trade with me has not been so brisk in a number of years, both in repairing and new work. I employ 16 men, and run 2 forges, and have all I can do, with every prospect of good business through the season. I have been in my present location over 26 years, and this is about as good a season as I have ever had."—ARTHUR MCGERALD, 297 East Broadway, New-York City.

BAD.—"We are inclined to think that, with most manufacturers, the present demand for new vehicles is something like a tailor during a mild winter or a hard time period. His customers are very apt to look their garments over, and try and make the old coat go another season, with a little vamping up, rather than order a new one. That is certainly our experience as a whole."—ANON, New-York City.

GOOD.—"We have been in business 9 years, and our business has increased every year, this year as much as any other. We run 4 forges. We make coaches, buggies, wagons and trucks."—DONIGAN & NIELSON, 745-749 Third-ave., Brooklyn, N. Y.

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The 16 reports from leading builders and repairers in New-York City and Brooklyn, as above recorded, include 5 "Very Good," 5 "Good," 4 "Fair," and 2 "Bad," thus implying a general average of "Good." We are only too well aware, however, that the city trade in new work, particularly the higher grades, has been far from good throughout the spring; and but for an unusual amount of repair work this season, our city shops would have fared very poorly. A careful study of these reports, supplemented by more detailed information gained from several of the leading city firms, seems to justify us in averaging the above reports as follows: "New work, Bad;" and "Repairs, Very Good."

NEW-YORK STATE.

GOOD.—"Business with me is good."—L. J. BAZZONI, Newburgh, N. Y.

BAD.—"Business is very quiet at present, and we do not expect it to be very brisk this year."—PHILIP DEUCHLER, Lyons, N. Y.

VERY GOOD.—"Business with us is just booming. Our trade is far ahead of any year since we commenced business."—GRIFFIN & WOOD, Glens Falls, N. Y.

FAIR.—"Business with us is fair, but not up to what it has been in previous years. We only run about 10 men on new work and general repairing."—COCKS BROS., Cornwall, N. Y.

VERY GOOD.—"Our trade was never better. We are behind in filling orders, and prospects are good for a good season's trade."—WATERTOWN SPRING WAGON CO., Watertown, N. Y.

VERY GOOD.—"My trade is better this year than ever before. I am running 2 forges, and building all fine light work. I have not been able to supply all orders this year."—E. B. DELAMATER, Poughkeepsie, N. Y.

VERY GOOD.—"Business is very good, and we cannot keep up with orders. We work 425 men, and 30 forges. We build a general line of light work and platform-spring wagons."—CORTLAND WAGON CO., Cortland, N. Y.

VERY GOOD.—"We have a very good trade indeed. We work 20 forges, and 200 employes, and build light carriages, buggies and spring wagons. We do not, however, look for a very good fall trade."—ANON, Central New-York State.

VERY GOOD.—"Our business is very good, and we can hardly keep up with our orders, the painting and blacksmith work being particularly behind. We want another blacksmith and painter now. Our carriages are sold as fast as finished."—STEVENS & MCINTYRE, Tonawanda, N. Y.

GOOD.—"Our trade is good. We employ 130 men, and run 8 fires in our blacksmith shop, besides steam power, Bradley power-hammer and other machinery. We build buggies and light spring-wagons, and no heavy farm or lumber wagons, and no carts."—SHORT & SMITH, Syracuse, N. Y.

VERY GOOD.—"Business with me is very good. I make a specialty of the Blydenburgh, Suffolk, and Montauk wagons, which are very much in demand by the summer tourist, and for general run-about purposes. I expect to turn out 150 jobs this year, surely."—C. M. BLYDENBURGH, Riverhead, N. Y.

VERY GOOD.—"The carriage trade has been unusually prosperous in Batavia this spring. Builders are now running on ordered work altogether. There has been a good deal of second-grade and third-grade work sold here, but it is fast falling off, and customers are getting tired of clumsy Cincinnati work."—C. E. VADER, Batavia, N. Y.

FAIR.—"My repair trade is first-rate; but orders for new work come in slowly, and I think will be below the average this year. There is no sale for ready-made work, as the factory wagons fill the market, and take all of my customers except those who wish something made to suit peculiar views."—HORACE SAGUE, Poughkeepsie, N. Y.

VERY GOOD.—"We are glad to answer our business is first-class. We find our sales from January to the present month have increased fully one-fourth over sales of January to June, 1883. We have 4 forges, and employ 25 men. We make nothing but fine light work, our patent buckboard being our specialty."—JOUBERT & WHITE, Glens Falls, N. Y.

VERY GOOD.—"Upon the whole, since the last of March, business has been very good. While there has not been the same demand for new work that we have had for the past few years, the difference has been made up in repairs, and we never before had so much repairing work as we have had this season."—P. J. BROWN, West Brighton, S. I., N. Y.

GOOD.—"I work 100 men, and turn out from 2,000 to 2,500 carriages and cutters per year. During 1884, trade has been good,—not as good as in 1882 and 1883, but better than I expected. I am using my utmost endeavor to improve my work in quality, but I do not lower prices. My output will be 20 per cent. less for 1884 than for 1882 or 1883."—K. A. HUGHSON, Rochester, N. Y.

VERY GOOD.—"Business is very good with us. We have all we can do, and orders ahead for about all we can get out for a month to come. The rain of the past two weeks, together with the panic in New-York, have hurt orders somewhat; but still we have a very fair trade. If it will ever stop raining, we think we might look for a very good season as a whole; but if this English weather continues indefinitely, we look for dull trade very soon."—SHORT & SMITH, Wholesale Carriage and Sleigh-builders, Syracuse, N. Y.

* * *

New-York State shows a much healthier business in new work outside the metropolis. The above record of 17 reports shows 11 "Very Good," 3 "Good," 2 "Fair," and 1 "Bad,"—or an average decidedly in favor of "Very Good," which we believe to be justified by the facts.

NEW-ENGLAND.

MAINE.

FAIR.—"I think that trade generally in this section is rather quiet. We are running but two-thirds our usual force, and have not been since last December. With that force we have been pushed rather hard, having had more ordered work than usual, but we look for a very quiet time after July 1st, when we shall change over from making carriages to sleigh work."—ZENAS THOMPSON, JR., Portland, Me.

NEW-HAMPSHIRE.

FAIR.—"Business is fair, but irregular, and prospects not very promising."—ABBOT-DOWNING CO., Concord, N. H.

GOOD.—"Trade has been good up to date (June 18). I run 4 fires on light work."—J. B. MCCRILLIS & SON, Manchester, N. H.

VERY GOOD.—"Business is very good with us. We employ 25 men. Our principal work is in express, delivery and business wagons for the California trade; but we also build all kinds of ordered work."—SANBORN CARRIAGE CO., Manchester, N. H.

NEW-HAMPSHIRE—continued.

FAIR.—“We will simply quote business fair; but, by way of explanation, will say that, from October, 1883, to March, 1884, our sales were small, and we accumulated stock largely. For the past three months, and at the present time, we have nearly enough to do, but do not think it will continue much longer. We fear a dull time after next month, through next year. We have 42 forges, and 275 men, with all improved machinery, so that we require large orders to keep us running full all the time. We never had so much, or so nice stock on hand as now, and we are all ready for a large business, when it comes.”—ANON, New-Hampshire.

MASSACHUSETTS.

GOOD.—“Business is good.”—R. F. BRIGGS & Co., Amesbury, Mass.

VERY GOOD.—“Business with us is very good,—far ahead of last year.”—ANON, Boston, Mass.

FAIR.—“Business is fair. I run 3 forges on lightning jump-seats altogether.”—ANON, Amesbury, Mass.

VERY GOOD.—“Trade was never better with us. We have all we can do.”—S. E. PEASE & SON, Merrimac, Mass.

GOOD.—“Our trade has been good. We run 8 forges, and produce 1,000 jobs annually.”—LOCKE & JEWELL, Amesbury, Mass.

GOOD.—“Business is good, though not quite equal to last season. Our specialty is nice work.”—KIMBALL BROS., Boston, Mass.

VERY GOOD.—“Business is just rushing with me. My specialty is two-wheelers, of which I build 20 varieties.”—J. A. LANCASTER, Merrimac, Mass.

GOOD.—“Business is good. We are working 6 forges, and 45 men, mostly on light work, and of as fine quality as any made here.”—A. N. PARRY, Amesbury, Mass.

FAIR.—“Business is fair. We are running 4 fires, and employ 25 men. We confine ourselves entirely to the Dennett jump-seat.”—C. N. DENNETT, Amesbury, Mass.

GOOD.—“For the past two months our business has been better than in 1883, same months; with good prospects for this month.”—LITTLE & LARKIN, Merrimac, Mass.

VERY GOOD.—“Business with us is very good. We employ 60 men, and are running 7 forges. We make strictly the highest grade of carriages.”—SARGENT & HAM, Boston, Mass.

VERY GOOD.—“We have a very good trade. We build best work, and run 2 fires, with full complement of other help. We build all kinds of light work.”—S. SCOFIELD & SON, Merrimac, Mass.

VERY GOOD.—“Our business is very good, being ahead of last year. We employ 45 men. We build mostly light carriages, and make a specialty of physicians' carriages.”—PECK & WHITE, Taunton, Mass.

FAIR.—“We are glad to report about our usual business. The only change we make is running five days full, and play Saturdays. Our old customers are using about their usual quantity.”—DALZELL & Co., So. Egremont, Mass.

FAIR.—“Sales are fully up to last year. Certain styles, say buggies and phaetons, are sold closer than ever before. Specialties bring good prices, and are in fair demand, but everything indicates a very dull fall.”—ANON, Amesbury, Mass.

FAIR.—“I would inform you that I have worked on sleighs for 55 years past, for home use. I am alone this year. I shall soon close the sleigh works, for, though the demand is fair, it is too hard work for me.”—A. S. BRYANT, Westboro, Mass.

GOOD.—“Sales of new work fair, and of Ivers' buggies good, while repairing is very good,—indeed, never better! First-class work is our specialty, both new and repairing. We employ about 20 men in the spring, and 2 forges.”—F. IVERS & SON, North Cambridge, Mass.

VERY GOOD.—“Business with us is very good. We are running 6 fires, and a force of 38 men, all on fine work, that is, on light open and top carriages, and we also run one fire on spring wagon work. We are also very busy on repairs.”—FENTON & DUNN, Holyoke, Mass.

FAIR.—“Our business is improving. We started in under difficulties, but, having a good article, we hope to make a very good business with it, on its own merits. Our carriage shop has had a fair run this year,—but no rush.”—UNIVERSAL LEATHER LACQUER CO., Franklin, Mass.

FAIR.—“Trade is fair. I have this spring shipped more jobs to date than last year, but the outlook is that we shall have a dull season after the 1st of July. I make light work, and employ 45 men in the different departments, building 600 or 700 jobs a year.”—D. J. FOLGER, Amesbury, Mass.

FAIR.—“Trade is fair with me, though not so good as last year. I build box buggies, Goddard buggies, carriages, cut-unders, one-man surreys, Lawrence extension-top carryalls, and wagons and sleighs of all kinds. I employ 3 forges and 15 men.”—ARTHUR J. SCOTT, 21 Eliot-st., Boston, Mass.

GOOD.—“Our sales are good. We keep a large stock on hand, some 500 jobs all the year round, including nearly every kind of a carriage or wagon, besides barges, wagonets, etc. Our sales run quite evenly, year in and year out, or nearly a hundred a month.”—HENDERSON BROS., North Cambridge, Mass.

GOOD.—“I make a specialty of sleighs in the wood and iron. I built about 400 last year, mostly high-grade, and I sold every one, and at fair prices. This year I propose to build 1,000, and I already have encouragement in the way of orders from builders who know my work.”—S. R. BAILEY, Amesbury, Mass.

GOOD.—“Our business is good,—better than last year. We employ 40 men, that being the average for the year, and have 6 forges. Our work is high-grade, both heavy and light, but mainly heavy, and for the retail trade; and a greater part of it to order.”—F. W. TUCKER, CHAUNCEY THOMAS & Co., Boston, Mass.

FAIR.—“We find business very fair, although slacking a little. We have run 8 fires steadily this season. Fully half our work is in two-wheelers, with Clarkson's spring. Our body and gear work has been as good as last year, and our body stock business has been much better.”—GOSS, DRUMMOND & Co., Amesbury, Mass.

VERY GOOD.—“Our trade has been very good. We attribute this in part to the amount of carriage we give for the money. Our trade is fully up to any year for a period of ten years. We work 3 to 4 forges, and employ 20 to 25 hands. Our work is finely finished, and of durable qualities.”—M. G. CLEMENT & SON, Merrimac, Mass.

VERY GOOD.—“My trade is not only good, but better, best,—the very best I ever had it. I employ 65 men, 7 forges, and 1 spring furnace, and my produce is about all patented specialties, including Gurney cabs, Gurnettes, parcel carts, refrigerator wagons, passenger coaches, fire department work, etc.”—J. THEO. GURNEY, Boston, Mass.

VERY GOOD.—“Business is very good with me, but it is not up to the standard of two years ago. I do not depend altogether on the sales of my own work, as I do a large business in buying and selling all kinds, both new and second-hand. I keep but 8 men, and, as one of them remarked, ‘it takes very little to keep us all busy.’ At present this is the case. I build mostly store and express wagons.”—P. H. HENDERSON, Jamaica Plain, Mass.

VERY GOOD.—“Business is very good with us—more than we can do. We employ 10 men, and our pay roll is about \$650 a month. We are making a specialty of the Openheim double buggy bodies. Mr. Wm. G. Ellis here has the right of Essex county, and he is selling them fast. We also make a specialty of all kinds of dog-cart bodies. We have all the best mechanics that we can get, and we defy competition.”—FRANCIS & SMITH, Amesbury, Mass.

FAIR.—“We have been rather inclined to complain. First, our spring was cold and backward; trade was late in starting; and had we replied from impulse, we should have said about ‘half a business.’ But in replying to such an inquiry as yours, we deem it best to first look up the facts, and we find the result much better than we were aware of. We have not done so much as last year, as there has been a falling off in the number of more costly goods sold; but, taking into account the condition of general business, the great shrinkage in stock values, and so much unfavorable weather, we feel much gratified, and have scarcely grounds for complaint.”—WM. P. SARGENT & Co., Boston, Mass.

GOOD.—“My trade is good. This is my fifth year in the present shop, and trade has increased every year. I built an addition last year, and think I will build on a repository next year wholly for new work, for where there is but one room, new and old jobs will mix up, and each detracts from the other when you are selling them. I employ 8 hands the year round, and extra in the summer season. My trade is principally in orders for gentlemen's light road wagons, Goddard pattern top jobs, light rockaways, and open beach wagons and democrat wagons, also light grocer wagons on order; and I usually get up about six sleighs and some light pungs every year. I enjoy a good trade, and make but few bad bills.”—P. A. McVICAR, Auburndale, Mass.

CONNECTICUT.

GOOD.—“Business with me is good.”—H. D. GATES, Bridgeport, Conn.

FAIR.—“Business in our line in Manchester is small, but is quite as good as last year thus far.”—C. H. ARNOLD, Manchester, Conn.

VERY GOOD.—“We are selling carts faster than we can build them with our present facilities, and we dare not stop now to look up another place.”—BRIDGEFORD CART CO., Bridgeport, Conn.

FAIR.—“Our trade is about the same as last year, and we think ‘fair’ describes it pretty well. The best class of heavy work is our specialty.”—DURHAM & WOOSTER, New-Haven, Conn.

FAIR.—“Trade with us up to the first of May was better than last year, but through the month of May there was a gradual falling off; and while we are now comfortably busy on special orders, the sales from stock are light.”—ANON, Connecticut.

VERY GOOD.—“Trade has been very good since the month of March,—much better than we anticipated. We employ from 65 to 70 men, and our productions include landaus, coaches, landaulets, broughams, coupés, rockaways, victorias, cabriolets, T-carts, etc.”—B. MANVILLE & Co., New-Haven, Conn.

VERY GOOD.—“We are happy to state that we have been exceedingly busy since the first of April, and are very busy at the present time, with a bright outlook for the future. We are making the highest grade of goods possible, which are being appreciated by the riding public.”—ANON, New-Haven, Conn.

VERY GOOD.—“We have 5 fires, and are running 30 hands. We are doing twice the amount of last year's business, and could not wish for a better trade. We make a specialty of village carts and medium top and no-top buggies, also double-seat family carriages. We were the originators of the machinery system in carriage making. We can't be beaten on prices.”—GEO. T. NEWHALL CARRIAGE CO., New-Haven, Conn.

GOOD.—“We cannot complain of our business as to quantity this season. It is fully up to that of last year, and perhaps a trifle better. We have no reason to complain. Prices are cut way down by competition, and we have to look sharper after our business. Our production of heavy work is slightly greater than last year. People are beginning to appreciate a first-class article at a low price, and come from New-York to purchase. Come and see our new factory!”—HINCKS & JOHNSON, Bridgeport, Conn.

VERY GOOD.—“Business is very good indeed with me. I have orders now for nearly two months ahead, and am selling a nice lot from my store-room. I endeavor to please my customers, and give them strictly first-class work, and I find this course tells in my favor in the long run, as I thereby gain their confidence. Inclosed find check for amount of subscription to *The Hub*, which it would be a pleasure for me to pay if it were double the price, as I think it is well worth it.”—C. F. WEEKS, Rockville, Conn.

VERY GOOD.—“Business with me was very quiet through the winter, but is very good now, especially on repairs. Please find check inclosed for subscription to *The Hub*. It gives me much pleasure to read each number, as it is the only way I have to learn what other people in the trade are doing. I wish particularly to refer to the Dayton tariff of carriage repairs in your May number, as the best I have seen yet. I consider that alone worth to me many times my one year's subscription.”—GEO. PANNETON, Waterbury, Conn.

* * *

New-England, as will be noticed, is very fully represented above, by 47 witnesses, practically including all her most noteworthy manufacturers; and we are consequently inclined to accept the result thereby indicated, which includes 18 “Very Good,” 13 “Good,” 16 “Fair,” 0 “Bad,” and 0 “Very Bad,”—or a general average of “Good.” New-England will please accept our congratulations!

MIDDLE STATES.

NEW-JERSEY.

VERY GOOD.—“Business is very good.”—C. SCHUMACHER, Newark, N. J.

FAIR.—“Business with me is very fair.”—J. M. DALRYMPLE, Hopewell, N. J.

VERY GOOD.—“We are as busy as we can possibly be.”—C. ANTONIDES & SON, Long Branch, N. J.

PENNSYLVANIA.

FAIR.—“Business is better than it was, and it is still picking up.”—BYRON H. STOVER, Kulpsville, Pa.

FAIR.—“Trade up to the present has been about equal to last year, but prospects are not so good.”—WM. D. ROGERS, SON & Co., Philadelphia, Pa.

FAIR.—“Business is fair. I have never seen a price-list in *The Hub* of repair prices of Pittsburgh. I would like to get such a price-list.”—W. H. HIEBER, Etna, Pa.

VERY GOOD.—“Trade with us is very good, surpassing other years very much. We employ 40 men, and 4 forges, and our work is strictly *first-class*.”—EDGERLEY & Co., Lancaster, Pa.

FAIR.—“The writer answers only for our Philadelphia branch, where we find trade a little better than last year, or, we would say, fair. At this branch we run 2 forges, on repairs and fine work, and employ about 25 men.”—MCLEAR & KENDALL, Philadelphia, Pa.

GOOD.—“Business with me has been about the same as last year, with a tendency to exceed last year's sales. I run 3 forges, and build light top buggies, and physicians' and extension-top phaetons. I congratulate you on the complete success of your valuable periodical.”—R. MILLER'S SON, Kutztown, Pa.

VERY GOOD.—“This has been our best year so far since our establishment in business in 1840. We have been uncomfortably busy beyond our capacity. We employ 58 men and 5 forges, and all steam machinery, etc., available. Express and business wagons are our specialty.”—GEO. LENGERT & SON, Philadelphia, Pa.

VERY GOOD.—“Our business this year has been very good, and in excess of previous years, both in sales of new work and repairing. We build only fine carriages, including victorias, cabriolets, coupés, broughams, coupé-rockaways, and various styles of phaetons, buggies, physicians' carriages, wagonets, etc.”—WM. D. GARDNER, 214 South 5th-st., Philadelphia, Pa.

VERY GOOD.—“Trade during this spring has been very good with us, both in new work and repairing. We have been obliged to work some departments overtime, and have kept on our full force of 55 hands, besides a few extras. The business is slacking up somewhat now on new work, but still we keep busy on repairing. We have several orders on our books for July delivery.”—GEISSEL & BAYHA, Philadelphia, Pa.

VERY GOOD.—“In answer to your query, How is business? I can say that there is a little too much of it at present. My business is confined to the country, and is consequently mostly among farmers, who, as a class, are noted for putting off their wagon work till the last minute. Allow me to say that I still find instruction in the columns of *The Hub*, and hope it may continue to prosper.”—G. S. THORP, Howellville, Pa.

PENNSYLVANIA—continued.

VERY GOOD.—“We have had a very good trade this spring, mostly all ordered work, and we are not up with our orders yet. Repairing also is good. We work 11 hands. We are well satisfied.”—GULLY, MECHLY & Co., Mt. Pleasant, Pa.

VERY GOOD.—“Business has been extraordinarily good with us this spring, and at present we are fully two months behind our orders, with our works running to fullest capacity. We are way ahead of last year's sales at this time. The trade seems to tend toward the finer grades, although there is a fair demand for the common stocks, on which, however, prices are very close. The carriage trade is ordering in large quantities again, which we regard as a very good sign. For some time past, orders were small but more frequent, but now we get very respectably sized orders. We think the worst is over, for a while, at least, and we look forward to a lively carriage trade before long.”—JACOB A. LEIPPE, Anchor Bending Works, Reading, Pa.

DELAWARE.

FAIR.—“Trade is only fair, or about a two-thirds year. We are working 125 men.”—ANON, Delaware.

MARYLAND.

VERY BAD.—“Business could not be worse!”—J. F. HUNTER, Baltimore, Md.

GOOD.—“The firm of Hane & Hood was dissolved on April 21st, 1884, and J. D. Hane now continues the business at the old stand. We are glad to report business brisk, with favorable prospects for a good spring and summer trade.”—GEO. F. HANE, Frederick, Md.

VERY GOOD.—“Dear Mr. Hub: Business has been very good with us since the middle of March. Orders come in small but steadily. We herewith inclose our check for \$5.75, in order to make sure of a welcome visit from you every month to March next.”—E. STINSON & Co., Baltimore, Md.

VERY GOOD.—“With the Phoenix Carriage Works, business at present is very brisk. We do nothing but first-class work, principally fine buggies, and have the reputation of turning out the finest work in the county. Please find inclosed \$3.00 for subscription to *The Hub*, with which I am very much pleased.”—JOHN SMITH, Proprietor Phoenix Carriage Works, Belair, Md.

DISTRICT OF COLUMBIA.

FAIR.—“Business is fair with us for this season of the year. Mr. Graham himself has been down South for about three months for his health, but has just returned, and we are glad to say that he has greatly improved.”—R. H. GRAHAM, (per G.), Washington, D. C.

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Our correspondents in the Middle States haven't responded with the same alacrity as our Yankee friends, but sufficiently, we think, to show their endorsement of the favorable report we recorded last month. As above shown there are 21 reports, divided as follows: 11 “Very Good,” 2 “Good,” 7 “Fair,” 0 “Bad,” and 1 “Very Bad,”—thus giving an average of “Better than Good,” further emphasized by that of New-York, the sister Middle State, already separately reported as “Very Good.”

WESTERN STATES.

OHIO.

BAD.—“Trade is a little off.”—ANON, Cincinnati, O.

FAIR.—“Trade is fair with us.”—ACTIVE MFG. Co., Cincinnati, O.

VERY GOOD.—“Business is booming.”—TROY BUGGY WORKS, Troy, O.

VERY GOOD.—“Business is very good.”—TUBULAR AXLE Co. Wagon Works, Toledo, O.

VERY GOOD.—“Trade is very good with us, both here and at Kansas City.”—ANON, Columbus, O.

FAIR.—“Trade is about as usual with us.”—THE GEO. C. MILLER SONS CARRIAGE Co., Cincinnati, O.

GOOD.—“Business is good with us,—much better than we expected.”—BUCKEYE BUGGY Co., Columbus, O.

VERY GOOD.—“Our trade is all we can desire.”—THE LOUIS COOK MFG. Co., LOUIS E. MAYER, V. P., Cincinnati, O.

VERY GOOD.—“Business is only too good, as all carriage men know it to be at this time of year.”—CARR & BURDOV, Toledo, O.

VERY GOOD.—“Business is very good as compared with last year. We make the Columbus grade of buggies.”—BUCKEYE BUGGY Co., Columbus, O.

BAD.—“We manufacture light and heavy work, first-class only. Business is very unsatisfactory. Our present force is not over 75 men.”—ANON, Cincinnati, O.

GOOD.—“Business is good with us. We run 12 forges, and make a specialty of first-class work.”—BRUCE CARRIAGE Co., G. H. DEGOLVER, Pres., Cincinnati, O.

VERY GOOD.—“Business at the present time with us is rushing. We are running to our full capacity, and also working at night.”—DAVIS, GOULD & Co., Cincinnati, O.

FAIR.—“Trade is fair with us. We build regular trade work, employ 34 forges, and build from 45 to 50 jobs per day. Our wheel works produce 125 sets per day. Outlook not encouraging for active trade.”—STANDARD WAGON Co., Cincinnati, O.

GOOD.—“Business is good. Sales to date (June 10th) exceed those of last year. We employ about 450 hands, and make an intermediate grade of work, and only one grade, named ‘The E. & F. Co.’ We have no reason to complain of future prospects.”—THE EMERSON-FISHER Co., Cincinnati, O.

VERY GOOD.—“We are pleased to inform you that trade during the months of January and February was equal to the same months last year. March and April fell a little behind, but May is to the front, and June will, no doubt, beat our best records. We hope our friends fare as well.”—ANDERSON, HARRIS & Co., Cincinnati, O.

VERY GOOD.—“Our trade is largely farm wagons, and we also do a large business in spring wagons, buggies and carriages. Our trade in general, up to June 1st, was in excess of any previous year. We have a branch house at Albany, N. Y., handling Eastern States reports trade very good; in Pennsylvania and the Middle States, only fair. In the Southern States it is too early yet to predict, as trade does not begin until July or August. West and Northwest it is only fair now.”—MILBURN WAGON Co., Toledo, O.

ILLINOIS.

GOOD.—“Business is good.”—J. F. HORSLEY, Sterling, Ill.

FAIR.—“Business is fair, but prices rule low.”—HENRY KILTS, Canton, Ill.

VERY GOOD.—“We are overwhelmed with work, though we have enlarged facilities several fold.”—ANON, Chicago, Ill.

GOOD.—“Trade with us is good,—about the same as last season, while we are having a large increase of trade on fine work.”—H. J. EDWARDS & SONS, 291 and 293 Wabash-ave., Chicago, Ill.

VERY GOOD.—“Our business is very good. We are working 32 men, and build fine work exclusively (pleasure carriages), and mostly to order.”—C. STONE & SONS, 169-175 Ogden-ave., Chicago, Ill.

VERY GOOD.—“Trade with us has been very good this spring, both on new work and repairing. We find nothing to complain of in the present situation or future prospects.”—ANON, Chicago, Ill.

FAIR.—“Our trade has been very fair,—quite as good as the last three or four years. Our factory is at New-Haven, and we keep no forges out here.”—D. J. LINES, Agt., 265 Wabash-ave., Chicago, Ill.

GOOD.—“I am running 5 fires at present, and manufacturing omnibuses, spring trucks, baggage and express wagons. Business compares favorably with last year.”—I. N. W. SHERMAN, Chicago, Ill.

VERY GOOD.—“Trade with us has been very good, both with our outside and local business. Our orders are pretty evenly divided between heavy and light work, so far as value. We employ 53 hands.”—HYNES CARRIAGE Co., Quincy, Ill.

FAIR.—“Trade in my line was good until May 1st. My average force is 18 men. We work full time, and have 4 forges. Our work is chiefly in heavy trucks. Trade for May and June has not been as good as previous years.”—ANON, Chicago, Ill.

BAD.—“Our trade this year is not good; we fear it can be classed ‘bad,’ as it is only one-half of last year's. Our crops are not good, and there is too much rain. Our force now is 15 men, with 2 forges, and plenty of work on the way.”—HEINZELMAN BROS., Belleville, Ill.

BAD.—“Trade up to the present (June 10th) is the poorest that we ever had, I believe. We build nothing but first-class work, carriages, buggies, etc., all light and medium work, and nothing heavier than a four-passenger cabriolet or barouche.”—D. L. BIGHAM & Co., Peoria, Ill.

FAIR.—“Our business is fair now, and we had a very good spring trade. We are running 6 forges steadily and are now behind on our orders. We are enlarging our trade now, and are reaching for Southern trade.”—J. L. CLARK & SON, F. B. MUNSSELL, Manager, Chicago, Ill.

VERY GOOD.—“We are very happy to report that our trade is very much better than it has been for the last two years; and the prospects are very good with us since we have got into our new shop.”—THOS. H. BROWN & SON, Novelty Carriage Works, cor. State and 20th-sts., Chicago, Ill.

GOOD.—“Trade is good. The buggy trade has fallen off one-third, but the cart trade has more than made up the deficiency. This is on account of the superior features of the Perry Cart. We are building 20 buggies and 40 carts daily, and employ about 350 men.”—ABBOTT BUGGY Co., Chicago, Ill.

GOOD.—“Our retail trade from our Chicago house is 20 per cent. larger than last year, but we attribute this to the fact that we have a better stock. Competition is strong, and it seems to be fashionable now for consumers to see how closely they can buy.”—STUDEBAKER BROS. MFG. Co., Chicago, Ill.

BAD.—“Business with us is a little slow just now,—mainly, I think, on account of the failure of crops last year; and I think it will continue to be slow this year, but farmers talk more favorably this year than I have heard them in years. If we have good crops this season, we will have a booming trade next year, and I live in hopes.”—CHAS. C. WILCOX, Joliet, Ill.

INDIANA.

BAD.—“Business with me is dull.”—JOS. A. JAMES, New Albany, Ind.

GOOD.—“Business is good, though ready money is scarce just now.”—BENJ. J. HOOD, Lewisville, Ind.

VERY GOOD.—“As to business with me, I must say it is very good for home trade.”—JOHN A. CHOCKELT, South-Bend, Ind.

VERY BAD.—“Trade this year is very bad in comparison with other previous years. I build two grades, medium and good.”—ANON, Mich.

BAD.—“So far this year our trade is very much short of last, and just at present we are only running about one-half our capacity on carts, buckboards and buggies.”—BACKUS ROAD CART Co., Indianapolis, Ind.

VERY BAD.—“I run 3 fires, and work 12 hands constantly; but in my 25 years' business experience, I never saw it so dull as it has been since the last sleighing season. Causes: factory work, and short-sighted buyers. I build from 40 to 50 jobs yearly.”—WM. C. PITNER, La Porte, Ind.

FAIR.—“We have found our business foots up 12 per cent. less than last year to this date (June 10th), which we attribute to excessive amount of rain in the last two months. It is fully equal, however, to 1882. We run 3 forges, building fine work, up to four-passenger rockaways, and employ 25 men.”—ANON, Indianapolis, Ind.

VERY GOOD.—“We are pleased to say that our trade is very good. Our business for the month of May was 20 per cent. better than for same month last year. In the early months of the year, trade was about the same as last year. We are working 150 men, and mail you our catalogue that you may see the classes of work we are building.”—ELKHART CARRIAGE AND HARNESS MFG. Co., W. B. PRATT, Sec'y, Elkhart, Ind.

FAIR.—“Trade in general through the West is quiet. There seems to have been an excess of stock carried over. Prospects were very fair in the spring, but, owing to the panic in Wall-st. last month, a conservative feeling has been engendered in the West, detrimentally affecting trade. This may change later when crops are assured. We are employing between 1,200 and 1,300 men, and up to this time (June 10th) have shipped more goods than for a like period last year, notwithstanding the unfavorable conditions of trade. Our immunity from the general depression we account for as due to the fact that we have been so long established in business, and because of the reputation of our goods. Goods are being sold at very low margin all through the West.”—STUDEBAKER BROS. MFG. Co., CLEM. STUDEBAKER, Prest., South Bend, Ind.

MICHIGAN.

FAIR.—“Business is rather dull, but improving.”—SAMUEL GILL, Jackson, Mich.

FAIR.—“Business is very fair with me at present.”—PHILIP WAGENER, Adrian, Mich.

GOOD.—“Business is in good shape with me now, and everything bright!”—A. W. BEER, Pontiac, Mich.

GOOD.—“So far this season, business has been fully as good as usual.”—HUGH JOHNSON, Detroit, Mich.

BAD.—“There is very little business doing, as most of the farmers' crops were a failure last season, which makes money very close.”—J. A. SALYER, Ithaca, Mich.

FAIR.—“Our trade (not mentioning collections) we think would come under your head of ‘fair.’ We are running 5 fires and 60 men, all told, against last year 9 fires and 90 men.”—ANON, Mich.

VERY GOOD.—“I am pleased to report an increasing trade, with sales 25 per cent. in excess of last year, thus far. I run 3 fires, with Lancaster blowers, and build nothing but fine light work.”—L. FRANK CLARK, Mason, Mich.

GOOD.—“Since commencing business in 1877 we have gradually been working up until last year, when business was a little slower than the year previous. Business thus far this year has been better than last year. We are working 3 fires, and about 30 men.”—SIEVERS & ERDMAN, Detroit, Mich.

FAIR.—“Business is very quiet yet; but my wholesale trade has been better than my home and local retail trade. All this is owing to no crops in 1883 in this part of the country, and farmers consequently buy only what they are obliged to buy, and nothing more. I am, however, working my full force, and on full time, and I expect a good trade in the fall, if there is a good harvest. Allegan is being rebuilt, as fast as our two brickyards can make the brick. Some of our blocks will not be as extravagantly finished as those lately burned, but they will all be very nice buildings.”—E. B. BORN, Allegan, Mich.

GOOD.—“The outlook for our business is good. We are very busy in our line, and have been all winter. We employ 13 hands, and all are worked full time the year around. We have turned out a truck this morning, of four tons capacity, with the largest steel tire ever put on in this city, i. e., 4 x 3/4 in.; it was made for us by the Detroit Stee and Spring Works. We do very heavy work. In the case of one job this spring, the axles alone tipped the beam at 1,300 lbs., while one wheel weighed 600 lbs.; and one hub (a little larger than your own) measured 18 x 22 in. It was for the Riverside track. They have had 32 tons on it, and moved it successfully. We have been in business only 5 years, but have succeeded beyond our expectations. We are like a wheel, which cannot get along without a hub of some kind, and we always prefer a good one, well seasoned; so please send along your *Hub* for another year, as we derive many benefit from it, and would not be without it.”—BELKNAP & PROUT, Detroit, Mich.

MICHIGAN—continued.

GOOD.—“During April and May business was very good, while now it is only fair; but, taking it all around, we have been doing a good business this season, with 4 forges and 28 men employed, and making our patent two-wheelers a specialty. Carriages and buggy sales have been rather quiet, but the volume of business has been about the same so far as during the past three years.”—REICHLER BROS., Detroit, Mich.

WISCONSIN.

GOOD.—“Our trade is good. Forty men comprise our working force.”—ANON, Milwaukee, Wis.

GOOD.—“We build only first-class work. We find a call for the better class of goods, and our trade has been better this spring, than last.”—G. W. OGDEN & Co., Milwaukee, Wis.

FAIR.—“Our business has been fairly good. We do not feel like complaining; while, from most other quarters, we hear complaints of dull and poor trade.”—G. W. OGDEN & Co., Milwaukee, Wis.

FAIR.—“Business has been fair. I employ 10 men on fine work and repairing. Sales of new work have not been so good as last year; but repairs fully as good; I do not expect any great falling off from last year's business.”—ANON, Milwaukee, Wis.

VERY GOOD.—“Our own trade, so far this season, has been very satisfactory, although not equaling in volume that of last. We consider the trade in a much healthier condition than it was one year ago. There has been a general tendency to reduce expenses, to scrutinize and reduce credits and to guard against over-production, many of the weaker concerns have gone under, or have been strengthened by fresh infusion of capital; while some of the stronger ones have learned that selling a \$200 buggy for \$100 doesn't pay. We consider the situation in the West encouraging; and, with good crops, we look for a good trade this fall.”—OSHKOSH CARRIAGE CO., T. M. GOODFELLOW, Sec'y and Supt., Oshkosh, Wis.

MINNESOTA.

BAD.—“Business in April was fair. In May and so far in June to date (June 12th) it has been very quiet,—in fact, *bad*. We are just now working about 25 men.”—E. M. HALLOWELL & Co., St. Paul, Minn.

IOWA.

GOOD.—“We had looked for a light trade this season, but our business has been far better than we anticipated.”—A. PEARSALL & SON, McGregor, Iowa.

FAIR.—“Business with us is only fair this season, except on our two-wheelers, which are selling as fast as they can be made at present.”—G. WOEBER & BROS., Davenport, Ia.

VERY GOOD.—“Our trade up to date (June 16th) has been very good,—in fact, better than for 4 or 5 years past. We build all spring work.”—F. D. McDOWELL & Co., Clinton, Iowa.

FAIR.—“We do not build work here, but have it all built in the East. Our trade has been fair up to date (June 16th).”—SIOUX CITY CARRIAGE REPOSITORY, H. B. CARY, Manager, Sioux City, Ia.

FAIR.—“Trade with us is fairly good. I think your last year's volume of *The Hub* has been the best you ever published, and I hope this year may be as good or better.”—JOHN L. MASON, Davenport, Ia.

VERY GOOD.—“Trade is now very good, but if rain does not come quickly we had better look out a little. We run 4 forges and 30 to 35 men; and are working on spring wagons only.”—YOUNG & HARMON, Davenport, Ia.

MISSOURI.

FAIR.—“Business with me is fair.”—J. F. PITT, Bethany, Mo.

FAIR.—“Trade this season in finished work is fair, and repairing very good. We have run 5 forges till lately, but now run only 3. All our work is first-class.”—JAMES A. WRIGHT & SONS CARRIAGE CO., St. Louis, Mo.

VERY GOOD.—“Our trade is very good, the bulk being in excess of any previous year. We employ about 125 men, and build principally a class of work adapted to the wants of Western and Southwestern livery and stockmen's trade, of good quality; buggies \$150 to \$250, and other vehicles in same quality.”—MILBURN MANUFACTURING CO., St. Louis, Mo.

GOOD.—“Business is good. We started in, this season, to make a much better grade of work than ever before. At first the trade was backward in taking hold of it, perhaps thinking it meant merely an advance in price, without improvement in quality. To overcome this, we induced our customers to take a sample. That did the business; and wherever our new goods have been seen, they have been appreciated, and orders are coming in from all sections of the country. Our new goods are meeting with favor everywhere.”—HAYDOCK BROS., St. Louis, Mo.

GOOD.—“We are doing a good business. We have 20 two-horse wagons and a carload of buggies, carriages and spring wagons, built to order for us by Sechler & Co., of Cincinnati. The outlook here is promising. I think the crops will excel any for the past four years, and we are looking for a good demand for our line of goods, and would say that we have as good business as any one could expect. We employ 5 or 6 hands, and do lots of repairing. We have the nicest property in town, with good tools, horse power, strong machinery, and plenty of water. We will say that business is good. Please find inclosed \$3, for subscription, and please do not stop *The Hub*, for we cannot do without it. I have a partner now, by the name of Geo. W. Tannehill.”—TERWILLEGER & TANNEHILL, S. S. TERWILLEGER, Jr., Shelbyville, Mo.

KANSAS.

BAD.—“Trade in this section is not so brisk as was anticipated. Dealers in the snide article are selling some, but buyers of good work are scarce. Repairing is our main reliance just now, and the cheap work keeps up a never-failing supply. It may possibly be a blessing in disguise.”—A. B. DICKINSON, Salina Carriage Factory, Salina, Kan.

FAIR.—“There is but very little change in business. Last month (May) I had a splendid trade, but now the weather is bad, with rain every other day. We are about to lose the largest carriage concern in the State, viz.: S. L. North & Co., who have been manufacturing work at the Penitentiary for a number of years. Mr. North's lease expired June 1st, but he is to continue until July 1st, in order to finish a number of jobs now in the shops. Mr. North has now embarked in the oatmeal business. The business at the Penitentiary will be carried on by the Caldwell Wagon Co., who manufacture the well-known Caldwell wagons, spring wagons, and a heavy Concord top buggy for the Texas trade. I understand that this is all they intend to manufacture at the present. Mr. Caldwell having leased the prison labor, all the other manufacturers at the prison are thrown out, and compelled to move into the city or retire. The enterprises carried on there were the Wagon Co., Carriage Co., boots and shoes, marble works, horse collars, and furniture, besides the coal mine, which is run by the State. The change will not benefit the carriage shops in town very much, as S. L. North & Co. sold most of their work in Texas.”—J. LYON, Leavenworth, Kas.

ARKANSAS.

VERY GOOD.—“In regard to business, I must say it has been very good this year. I sold more buggies and carriages from Jan. 1st, up to May 1st, than during the twelve months of last year. I am now building an addition to my factory, and enlarging my repository, which will be 44 x 100 ft. I have the largest carriage shop in Arkansas.”—L. KOERS, Little Rock, Ark.

* * *

Our friends in the West speak up with their accustomed promptitude and frankness, 10 States being represented, by 74 witnesses, whose reports are divided as follows: 22 “Very Good,” 19 “Good,” 21 “Fair,” 10 “Bad,” and 2 “Very Bad,”—or a straddle between “Good and Fair.”

SOUTHERN STATES.

WEST-VIRGINIA.

GOOD.—“Business is good.”—E. O. HARWOOD & SON, Moorefield, W. Va.

NORTH-CAROLINA.

VERY GOOD.—“We have had all we could do during the winter and spring, until the last two weeks, when we have sold but few jobs. We are running full capacity, and will continue doing so during this year. We make only one style of wagons, with crooked beds, used by peddlers and farmers marketing leaf tobacco. We make strictly first-class work. We saw the lumber in our own mills, and use only the best.”—GEO. E. NISSEN & Co., Salem, N. C.

GEORGIA.

BAD.—“Business is dull with us now. Money is scarce, and times hard.”—WADKINS & LAMAR, Camilla, Ga.

VERY GOOD.—“The trade in Georgia, taking the shortage of last year's crops into consideration, is very good.”—J. W. FRANK & Co., Atlanta, Ga.

BAD.—“Our business has been below fair. We are working only 5 hands regularly, and 2 forges. The demand is for cheaper work, a grade lower than heretofore.”—BAGWELL & GOWER, Flowery Branch, Ga.

FAIR.—“Business is fair to date (June 18th), with good prospects for a better trade. I build single and double-seat buggies, and all kinds of vehicles to order, also farm wagons. I work 4 forges and 16 hands.”—G. W. WALKER, Gainesville, Ga.

FAIR.—“Owing to poor crop prospects, and the credit system depended on by our people, our business is only about fair compared with previous years. We run 3 forges, on buggies, wagons and carriages, to order. One-horse wagons are our specialty.”—DARSEY & DREWRY, Griffin, Ga.

VERY GOOD.—“We are running 4 forges and 6 painters, and business is very good. We have 2 months' work ahead, and have been behind all this year. We are running 27 hands. Business generally is very good in this section. We have two shops here.”—SUMMERS & MURPHEY, Barnesville, Ga.

FAIR.—“Because of short crops in our section last year, our sales this year are not as good as last year up to this time; but the prospect is favorable for crops now, and if it continues so, we will get back what we have lost and probably more; so you can count us fair.”—W. H. LLOYD, Social Circle, Ga.

FAIR.—“Trade in our section has been only fair, on account of the poor crops of last season; but prospects for the fall trade are good now. Everything, however, depends on our getting frequent showers this summer. We ordinarily work 80 to 90 hands, but are now working 50.”—COLLINS MFG. CO., Macon, Ga.

FAIR.—“Business is fair. I work 9 men, and run 2 forges. I build lots of one-horse farm wagons, and no-top buggies, with a smart sprinkling of light cabriolets and pony phaetons. Crops in this section were badly damaged last year by drought, but our prospects are better this year.”—J. F. AULD, Elberton, Ga.

FAIR.—“Trade is fair. We employ 14 hands, and run at present 2 forges. We make buggies, phaetons, barouches, express wagons and business wagons, besides general carriage repairing and ordered work, and sell farm wagons made by the Tennessee Wagon Co., of Nashville, Tenn.”—N. C. SPENCE, Atlanta, Ga.

GOOD.—“My business is a good deal better than last year at this time. I do principally a repairing business, and put up some new work to order. I keep very little to sell. Prices are low here. I run 2 forges, 2 woodworkers, 2 painters, and 1 trimmer. My business was established in 1865.”—W. K. BOOTH, Wagon Builder, Atlanta, Ga.

GOOD.—“We have in our smith-shop 3 forges, all running on repairing and new work. In our trimming-shop we have 2 benches, both running; in our paint-shop 2 good men, and 2 under men; in our wood-shop, 1 gear maker and 1 repairer. We buy all our bodies, having no room to build them. This year we build city work only, including fine light buggies, ladies' and doctors' phaetons, and fine extension-top barouches; and we have had a good demand, consequent on six to ten miles of Belgium block pavement laid down in 1883 and 1884. Our country trade is rather dull but our city trade is good, and we run our full capacity.”—CURTIS & WEITZELL, Atlanta, Ga.

FAIR.—“Dear Hub: Business has fallen off in the last few weeks, and I have reduced my force from 27 to 17. I am making a specialty of sewing-machine wagons, and am building wagons for several companies doing business in the South. However, this is generally a quiet time with companies, as farmers are without money and are planting. I have recently put in power and improved wood-working machinery, with blower, emery wheels and drill; and I look for a good business in a couple of months, as the companies will then be preparing for the early fall business. I am, however, hugging the shore, and can only report business fair, as compared with three months ago, or even this time last year.”—W. L. JARVIS, Atlanta, Ga.

FLORIDA.

FAIR.—“Summer is our dull season here, but I have to report that business is fair for this time of the year.”—P. E. McMURRAY, Jacksonville, Fla.

LOUISIANA.

VERY GOOD.—“I am pleased to inform you that business is brisk at present in our shop, and continues to improve. Inclosed find post-office order for annual subscription to your valuable and instructive journal.”—THOS. O'CONNOR, Wagon Builder, 132 Julia-st., New Orleans, La.

TENNESSEE.

VERY GOOD.—“Business is and has been splendid all the spring, with a greater demand for a better class of work. We are making a specialty of first-class vehicles.”—LILLY CARRIAGE CO., Memphis, Tenn.

FAIR.—“Trade in spokes fairly good, but prices are close. Carriage-makers and wheel companies appear to be buying only for present wants. The future outlook is good only for well-manufactured goods, and buyers are particular.”—THE CHATTANOOGA MFG. CO., L. E. PEARCE, Secretary, Chattanooga, Tenn.

KENTUCKY.

FAIR.—“Business in new work in this city is quite dull at present, but not discouraging, for repairing is good. The four carriage shops here are running two fires each, and I have known them to run only one each at this time of year.”—JOSEPH H. MULLIN, Lexington, Ky.

GOOD.—“Business is good. We manufacture landaus, landaulets, broughams, coupés, T-carts, barouches, rockaway-landaulets, surrey-wagons, ladies' and doctors' phaetons, and fine buggies. We build first-class work; and employ 18 to 20 hands and 2 fires.”—J. ENDERS & Co., Louisville, Ky.

TEXAS.

BAD.—“Business has been very dull, but is improving slowly.”—C. A. SWEARINGEN, Dealer in Cultivators, Wagons, etc., Lampasas, Texas.

BAD.—“The buggy and carriage business in this part of the State is very dull, owing to excessive rains during the whole spring.”—W. K. MENDENHALL, Houston, Texas.

* * *

In our experience, the South never before answered to an inquiry of this character so fully or so cheerfully as in this instance. The foregoing reports, 23 in number, represent 8 States, and are divided as follows: 5 “Very Good,” 4 “Good,” 10 “Fair,” and 4 “Bad;” or an average of “Better than Fair.”

PACIFIC STATES.

CALIFORNIA.

VERY GOOD.—“Business is very brisk now. Indeed, it never was better.”—W. WERTSCH, San Francisco, Cal.

GOOD.—“We do not manufacture at this point. Trade has been good up to date (June 2).”—STUDEBAKER BROS. MFG. CO., E. E. AMES, Manager, San Francisco, Cal.

* * *

We beg to say that our friends in the Pacific States are not to blame for this scarcity of reports from their section. We did not allow sufficient time for them to prepare their reports, and the above are merely the first arrivals, received just as we go to press.

* * *

In summing up the averages of these 200 individual reports from carriage and wagon manufacturers, let us now examine how they compare with the averages of the 127 reports from carriage supply houses which we made public last month. Here are the condensed results: In New-England, we find the present condition of the carriage trade to be “somewhat better than fair,” as reported by the carriage supply houses, and “good,” as reported by the carriage manufacturers themselves; in the Middle States (including New-York) the condition is respectively reported as “good” or “better than good; in the Western States “fair” or “between fair and good;” and in the South, strongly supported by Georgia (which might be called “the Massachusetts of the South,” without disrespect to either State), it is reported by the supply houses as “between fair and bad,” and by the carriage-makers as “better than fair.”

If these conclusions can be relied upon, it is possible that the lull in the carriage trade now commonly accepted as an established fact, is not quite so depressing or so general as was thought. While many city builders may have ample cause for complaint (and we too well know they have), it is possible that their country cousins may be pegging away with customary good cheer, snapping fingers at Wall-street’s tribulations, and accepting with good grace about their usual amount of business. We hope this is so!

One fact seems quite certain: there has been an unusual repair trade this spring, particularly in the cities; and, under the improved management and better prices of to-day, as compared with a generation past, this branch of the carriage business, when properly conducted, affords noteworthy help and comfort during periods of general depression like the present.

RELATIONS BETWEEN AMERICAN CARRIAGE BUILDERS AND THEIR WORKMEN.

BY JOHN W. BRITTON, OF NEW-YORK.

(Continued from page 192 in last number.)

MATERIAL CONDITION OF AMERICAN CARRIAGE MECHANICS.

SENATOR PUGH: You have spoken, Mr. Britton, of mechanics in your service who have attained a degree of knowledge and skill that is exceptional and surprising. I would like to ask what sort of a beginning these men made in your service, from which they have reached the position they now occupy? How did they commence in your service—in what capacity?

MR. BRITTON: One of the most intelligent men in our shop was at first a helper at a forge. He came from Richmond, Virginia, although born in the North, and he worked in the Tredegar Works. When the foreman in that department of our shop became dissatisfied with the business and left, I immediately put this man into his place, although he was not a full-fledged smith, but simply a helper. Some of our men left because I had promoted this man; but if they had all left, it would have made no difference. That man has been foreman of our smith-shop for a number of years. He had no early advantages of education, but is a good faithful man. He has studied some of the sciences, and is a man of great intelligence. He attends to seeing that the apprentices in his department get their lessons every day. In the smiths’ department the boys are generally without education. The educated “pretty” boy does not want to be dirty. But the smith’s work is among the noblest of all occupations. No stupid or dull man can ever make a first-class smith, because a smith has largely to work from his own instincts, and with his eyes. He has not the advantage of exact patterns to work by, as most other mechanics have.

There is another gentleman in this room, now listening to this testimony, who was with us for many years, and I think he was one of the committee that formed our Industrial Association. He was a journeyman before he came with us, and continued in that capacity for some time afterward. Later on he became superintendent, by our promoting

him from the bench, and he is now the chief instructor of our trade school for carriage draftsmen and mechanics, and has been such for three years past. He never had any of the advantages that people in a different position in life receive from constant contact with higher classes of persons; but he has been a steady and intelligent worker, and is a natural gentleman, with all the instincts of a gentleman.

SENATOR PUGH: What is the general condition in life of those who work for you, in respect to the houses they live in, the food they eat, and the clothing they wear?

MR. BRITTON: Well, careless and indifferent workmen drop out from us; they do not become fixed. When business slacks up and dull times come, such men drop out and go elsewhere; but our steady force—the men who have been with us for years—are in comfortable circumstances. When they come to the shop in the morning they show that they are comfortable, and I have been to the homes of many of them, and I know that their condition, as regards the comforts of life, is very good.

RATES OF WAGES PAID CARRIAGE WORKMEN.

SENATOR PUGH: Upon what rate of wages are they able to live in that condition?

MR. BRITTON: Well, a man can live very well on \$3 a day. We have mechanics who earn twice that sum—very fast and skillful workers, who work by the piece.

SENATOR PUGH: Is the labor you employ graded or classified in any way?

MR. BRITTON: Oh, yes. In the paint-shop it is graded, but rather by ourselves than by the men. There is one branch in our works—namely, the body-shop—in which all men are treated alike. That I consider an error and an evil, but we have never been able to rectify it. It came with us at our organization, and it is with us yet. All our body-makers get the same price for their work. I know men who are so conscientious that they are only making one-half what a faster man will make. Such a mechanic is perhaps not a better workman, but he takes greater care not to slight anything, and he cannot therefore earn more than half wages. By reason of such a man’s reliability and steadiness, I would willingly give him more than I would give to others; but when I once offered to give such a man 25 per cent. more than his fellow workmen, the others objected. They want all to be graded alike.

There are many singular ideas that have popularity among workingmen which you cannot very well explain. The man who is entitled, by reason of the excellence of his work, to 25 per cent. more pay than the average worker, never shows any effort to make up for his loss; he seems satisfied to put in his work at the same price as the inferior man. This is a marvel to me, and I have often discussed the matter with my men, but they say the custom has been so long in vogue that it won’t do to try to change it.

SENATOR PUGH: Do your men work by the day or piece?

MR. BRITTON: Largely by the piece, and I think that is the best and fairest way. I think the man who works for himself, and has no one to watch him, to see whether or not he does a day’s work in a day, or an hour’s work in an hour, thereby becomes a more manly man.

SENATOR PUGH: What is the average pay, per day, of the working men in your establishment?

MR. BRITTON: We employ men in the paint-shop who are hardly more than laborers; they are “rubbers,” and have a laborer’s pay. The average of fair mechanics ranges about \$2.75 per day.

SENATOR PUGH: Is that higher or lower than the average in other industries requiring the same grade of skill?

MR. BRITTON: I think that, in the mechanical trades, similar ability gets about the same compensation.

SOME PERSONAL REMINISCENCES.

SENATOR PUGH: I have been so favorably impressed by the degree and extent of knowledge you have displayed before this committee, that, if you have no objection to tell the committee how you acquired that knowledge, I should be glad to know it, particularly as you say you left school at twelve years of age. I am curious to know how you acquired so much and such varied information?

MR. BRITTON: Well, sir, it was not rare, when I was twelve years old for a boy of that age to know a little something. I remember that there were then three hundred scholars in Public School No. 7, in Christie-st. That was considered a large school in those days. I ranked either second or third in ability in the writing-class of that school. Nowadays, a boy of twelve in the public school is hardly out of pot-hooks. Nowadays I do not often get a boy from the public school at fourteen, who is much of a writer.

SENATOR PUGH: A boy, nowadays, of from fourteen to eighteen is not in a very mature condition intellectually. But you must have acquired a vast amount of information after you left school; and I should like to inquire, therefore, what have been your habits in respect to reading books, and what has been your application to the work of gathering the thoughts of other people?

MR. BRITTON : I have never been a student of books. I have gone straight to the fountain head. I have constantly mixed with people and talked with them, and I have also been a constant reader of newspapers. My first experience with newspapers was with the old *Courier*, published by James Watson Webb. I had, by accident, an opportunity to read that paper, after the persons who took it were done with it. I read it faithfully, and I have read regularly and faithfully some of the leading newspapers of the country ever since. I have spent very little time upon books, but I devour newspapers! I have a general knowledge of literature, but I have not gained this by reading books. I have not been able to find time for that. But I read all the newspaper criticisms. I have followed the literary criticisms in the *New-York Tribune* ever since it was first published. I thus get a general knowledge of what is going on in the world.

SENATOR PUGH : You endeavor to gain a knowledge of the daily events of current history?

MR. BRITTON : Yes, sir; and I would be glad to have the newspapers read in every public school.

SENATOR PUGH : You have, then, mainly acquired your knowledge by association with people, personal observation, and the reading of newspapers?

MR. BRITTON : Yes. Friction has been a leading element. I like to interest myself in anything that is going on near me.

SENATOR PUGH : Could not any young man who had naturally the right sort of qualities, make himself, as you have made yourself, without the aid of industrial schools.

MR. BRITTON : Well, that would be to assume that all young men are about alike, but they are not.

SENATOR PUGH : You think there is a great difference in men?

MR. BRITTON : There is certainly a vast difference. One may lack the power of observation which another man has. There are some business men, even of mature age and long experience, who cannot cipher out a man in advance of their business relations with him. They have to wait until the end of the transaction in order to find out what he is. They cannot look at a man, and then correctly cipher him up in advance, as many other men can.

SENATOR PUGH : Is it not true that our most successful merchants and traders, our financial and manufacturing leaders, and even those in the professions, are very largely men who made themselves?

MR. BRITTON : Yes, sir; I think it can hardly be questioned that such is the rule.

SENATOR PUGH : Are not the self-made men the leading men in all pursuits and industries?

MR. BRITTON : In a comparatively new country like America, I think that follows generally.

SENATOR BLAIR : We are not trying to improve the condition of the leading men, but that of the common men.

MR. BRITTON : Yes, it is of the rank and file that I have been speaking.

SENATOR PUGH : I mean by "leading men," the men who move and lead the world—who give direction to the thought and energy of the country. I do not mean "bosses."

MR. BRITTON : I understand that. This is certainly a country of noble opportunities for all who are ambitious. A man here has no stone on his head, unless he himself places it there and carries it voluntarily. He has a clear road if he wants to move onward and upward.

THE RIGHTS OF TRADES UNIONS.

Before closing, I would like to say a few words more on the subject of trades unions. An acquaintance recently asked me this question : "Do you think that trades unions have been a necessity in England? I answered, "Yes." "Why, then," he continued, "do you think they are not a necessity in America?" "Well," I said, "the wide choice of occupations in this country will effectually prevent any class from being oppressed here for any great length of time. A man here may be a common day-laborer, but, if he has the right material in him, there is no reason why he should remain a day laborer. There is really no reason, if he has the ability and uses it with discretion, why he should not attain almost any position he aims at. My father was originally a shoemaker, but that was no reason why I should be a shoemaker. Now, on the other hand, if I had been born in England and my father had been a shoemaker, the chances are that I would now be one. Inheritance is a very different matter in England and America.

To continue now with the subject of trades unions, when great bodies of men are born and brought up in cities and without any opportunities for outside observation, and when, at the same time, their employers combine to regulate the hours and prices of labor, I tell you that these men are justified in organizing against the employer. But in this country I do not see the necessity for such action. Their *right* to do so is unquestionable—here, as well as in England; but the *necessity* does not here exist. In America, if a man is oppressed in one occupation, this

whole wide country, filled with opportunities and possibilities, is wide open to him, and he can readily change his occupation, if he so desires.

SENATOR BLAIR : The right to so organize being conceded by you as unquestionable, I understand that, if you were a legislator and were applied to by those who claim a chance to exercise that right, and who ask the same privileges of coöperation that other men have in other directions, you would then give them that legislation, would you not?

MR. BRITTON : Yes, I would give them the right, certainly. I would not legislate against the right to combine, so long as there was no infringement of the common law. I very well know these trades unions have sometimes done things that are illegal, and which encroached upon the rights of others. Such acts, of course, I do not defend.

SENATOR BLAIR : The great corporations of the country have also frequently done, and still do, illegal things; but, as I understand you, you would not for that reason deprive individuals of the right of organization, after having extended the right of corporations?

MR. BRITTON : No, certainly not.

FURTHER PERSONAL REMINISCENCES.

SENATOR McCALL : I understood you to say, Mr. Britton, that there were three hundred boys in the public school with you when you were twelve years old? Let me ask how many of these boys have reached the success that you have?

MR. BRITTON : As I did not reach the highest class of my school I did not become acquainted with them all, and I have lost sight of the smaller boys; but I know that, some years ago, a meeting was called for the purpose of forming an association to be composed of members of the highest class, and I was astonished at the large number of men who had reached success in life, who went to the same school at the same time that I did, and who were in the higher class.

SENATOR McCALL : What was the number? Was it very large?

MR. BRITTON : Well, the period covered by the call was eight or ten years, the call including graduates of the highest class during that number of years; and I believe the association numbered about a hundred men, all occupying good positions in life.

SENATOR McCALL : In positions of life equal to your own?

MR. BRITTON : Well, yes; and some far above mine. I believe there were some brokers among them. [Laughter]. Permit me, gentlemen, to say right here, that I do not wish to give the committee, or the members of the press who are present, the idea that I am here as a representative leader. I come here merely as a worker and a business man. I suppose you may call me a successful man in the sense that I have tried to know my own business, and think I know it.

EDUCATIONAL INFLUENCES OF NEWSPAPERS.

SENATOR McCALL : From which have you learned most, from observation (the use of your own faculties), or from what you have read in newspapers of other men's sayings and doings.

MR. BRITTON : Well, friction with men has helped, and I get many valuable suggestions from newspapers.

SENATOR McCALL : You do not accept their statements as established facts, do you?

MR. BRITTON : No, sir. In many matters I don't agree with the paper I have taken from the first day of its publication, but I can't get along without it.

SENATOR McCALL : You use your own faculties then, after reading the newspapers?

MR. BRITTON : Certainly. In the public schools, if I had my way, I would have the daily newspapers used as a text-book. I think every school principal might with advantage use such parts as are proper, and read them to the school, and then briefly discuss the topics of the day; and if he sees any errors in their treatment, he should point these out to the pupils. I think there is no educational factor in this country equal to the public press. I know its short-comings and I wish they were fewer, but there is much good in the press, and it has my highest respect.

SENATOR McCALL : By the word "press" you mean to signify the publication or re-publication of the best thoughts and opinions of the world?

MR. BRITTON : Yes, sir.

AMBITION OF WORKMEN TO BECOME EMPLOYERS.

SENATOR BLAIR : I suppose you recognize, Mr. Britton, that the main object of the inquiries of this committee is to learn how to fit the masses to earn a livelihood by the labor of their hands, and not to become employers and conductors of business on an extensive scale. Now, is it not an impossible state of society that the workers should be employers?

MR. BRITTON : Yes; but the improvement of the one class means the improvement of the other. For example, a gentleman once asked me : "Why do you want a technical school?" My answer was to this effect : If I want a draftsman or foreman, I want a well-equipped man, and I can't get that sort of material from the ordinary shop-hand, un-

less he has had some opportunities of acquiring certain knowledge which he cannot get in a shop. "But," he exclaimed, "if that is the only reason, why can't you send abroad and get all the requirements in men who have been trained in technical schools already established." Perhaps I could do this, but I want the example here. If we turn out from a technical school in America a thoroughly equipped man, he helps to elevate the American trade. He helps to make the trade more profitable and more important; and every journeyman, and every common workman must of necessity share to some extent in the general success, because it creates an increased demand for the goods which he produces by his labor.

SENATOR PUGH: I imagine there are very few workmen who have not the ambition to become employers; and is not that a great incentive to the worker—the ambition to become an employer?

MR. BRITTON: Yes. When the workman ceases to have ambition, he is, as a rule, not a good workman. The constant opening up of new communities in our country, and the consequent enlargement of our trade, attracts away from us many of our best workmen. They see opportunities to go into new communities where they can achieve more rapid advancement. The journeyman who leaves us and goes to a growing Western city, is apt, when he visits us four or five years later, to be the head of some great new establishment. In the West, I think they rate a man a little differently from here. There, it is not the quality of a man's clothes, or even the amount of money he has, by which they measure a man; but if he is industrious and pushing, there is always somebody there who will take hold of him.

I remember presiding at a carriage-builders' convention held in Chicago in 1880, when one of the liveliest debaters on the floor, who gave more real entertainment to the debate than any one else, was a young fellow whose countenance was familiar to me, but I didn't know his name. He was from Oshkosh, Wisconsin. After the meeting was over he introduced himself to me, and said: "You don't remember me; I used to work for you four years ago." He had gone out West, and, having more than average ability, was taken right hold of. That is the advantage new settlements offer to ambitious young men. A man who goes West, a little better equipped than his fellows, soon gets to the top, provided that is his proper level. There are so many at the top here at the East that there are far less opportunities.

[NOTE.—The examination of Mr. Britton terminated at this point, and he was warmly thanked by the Senatorial Committee; after which Mr. John D. Gribbon was invited to the stand, and testified in detail respecting the condition of American workmen as viewed from his standpoint, and also in regard to the workings of the Technical School for Carriage Draftsmen and Mechanics.—ED.]

COLORED SLEIGH CHART.

SLEIGH STYLES FOR THE SEASON OF 1884-5.

(See Loose Sheet Facing Title-page.)

THE six colored perspectives presented on the accompanying sleigh chart, were designed for us by Mr. S. R. Bailey, of Amesbury, Mass., who makes a specialty of sleighs in the wood and iron, together with woodworking machinery and bent wood for the construction of carriages and sleighs.

In examining and comparing the designs, it will be observed that the outlines as a rule are quite novel, and we are informed that they are original with Mr. Bailey. The graceful form of the iron handles in front of these sleighs does special credit to the taste and originality of the designer. The following descriptions and measurements of the different patterns were kindly furnished by Mr. Bailey, for which he will please accept our thanks.

43. PORTLAND CUTTER.

This being a well-known style, needs but little description, especially as the effects in this class of sleighs are produced principally by the excellence of proportions and delicacy of the lines. In fact, any great change would not leave a true Portland Cutter.

The principal new features and characteristics of the design represented are, first, the dimensions of the dash, which is wider across the top, instead of being contracted as is usual; and, second, in the panels being curved one way, in distinction from the straight corner and flat-sided type.

The principal dimensions of this sleigh are as follows: Length of standards from runner to rail, front and back, $18\frac{1}{4}$ in., and middle, $16\frac{1}{2}$ in. Height of back panel, 27 in.; ditto, side, 18 in.; and ditto, dasher, 45 in. Width on bar, 29 in.; ditto, seat, 35 in., inside; ditto across top of dasher, 26 in.; and ditto, across top of back panel, $35\frac{1}{2}$ in. Length of body on rail, 35 in. Depth of seat, 17 in. Height of seat-back, 16 in. Track, 37 in., from out to out.

44. THE WHALEBONE TROTTER SLEIGH.

This sleigh has several characteristic features. The track is very wide compared with the narrow dimensions on the bar. The runners swell outwardly in front, which is done to clear the horse's feet when recovering. The running-part is ironed with steel throughout, and on the trussing principle, as shown in the cut. The body swells very slightly in every direction, and has mitered corners without moldings. The seat pitches forward slightly, to assist the driver in position. The body is provided with hinged joints at the junction of the seat-bar and risers, and at the points of connection with the seat bottom. This aids in giving the sleigh an elasticity not to be obtained otherwise.

Its dimensions are as follows: Height of standards from runner to rail, front and back, 21 in.; and at middle, 19 in. Height of dash, 46 in. ditto of back panel, 24 in. Width on bar, 20 in.; ditto of track, 37 in. ditto of seat, inside, 26 in. Length of body on rails, 35 in. Principal braces, $\frac{1}{4}$ in., steel. The swept cross-bars are made of wood, $\frac{5}{8} \times \frac{3}{8}$ in. in size. The weight of this sleigh will not exceed 40 lbs., exclusive of shafts and trimmings. Track, 37 in., from out to out.

45. THE POYEN DRIVING SLEIGH.

This sleigh is quite novel in design, the principal effect of which is produced by making the panels concave their entire height. The runners are curved in the form of a long Grecian scroll, and finished with a roll in front which spreads the tips of the runners outwardly in a striking manner, that can hardly be shown in a cut. The dash is surmounted by a snow-screen, of beveled plate-glass or wire, and by horse-hair plumes. The latter may, however, be omitted without affecting the design. The rolls, both on the body and dash, are finished on the ends by plated metallic buttons.

The principal dimensions of this pattern are as follows: Height of standards from runner to rail, front and back, $19\frac{1}{2}$ in.; ditto, at middle, 18 in.; ditto, at middle of back panel, from rail, 27 in.; ditto, at side panel, at pillar, $17\frac{1}{2}$ in.; ditto, at dash, with screen, $46\frac{1}{2}$ in. Width of bars, $25\frac{1}{2}$ in. Width of seat, 31 in. Width across top of back, 33 in. ditto, across top of dash, $28\frac{1}{2}$ in.; ditto, across top, at roll, $31\frac{1}{2}$ in. Length of body on rail, 35 in. Depth of seat, 17 in. Height of seat back, 16 in. Long braces, $\frac{5}{16}$ in., round steel. Slue braces, $\frac{3}{8}$ in., round steel. Shoes, $\frac{3}{4} \times \frac{5}{16}$ in., steel. Oxidized bronze dash handles are used. Track, 38 in., from out to out.

46. THE DOUBLE POYEN SLEIGH.

The body of this sleigh is modeled closely after the style of the Poyen Driving Sleigh, and the only essential differences between the two are the dash and the manner of attaching the runners to the same, which are apparent. The front seat tips forward to make more room for getting in and out.

The principal dimensions of this pattern are as follows: Height of standards, front and back, $19\frac{1}{2}$ in.; ditto, middle, 18 in.; ditto, back panel, 27 in.; ditto side panels, at pillar, 20 in.; ditto, dash, with screen, 52 in. Width on bar, 30 in.; ditto, of seats, 36 in.; ditto, across top of back, 38 in.; ditto, across top of dash, 38 in. Length of body on rail, 35 in. Side braces, $\frac{3}{8}$ in., round steel; slue braces, $\frac{1}{2}$ in., round steel. Shoes, $\frac{7}{8} \times \frac{3}{8}$ in., steel. Seat handles, $\frac{3}{8}$ in., round iron. Track, 38 in., from out to out.

47. THE ROCKAWAY SLEIGH.

This sleigh has the light genteel appearance of a gentleman's driving sleigh, while at the same time it possesses a great degree of comfort, will be seen by referring to the body dimensions. The convex upper panels swell from every direction, and the lower panels are not only concave but also swept lengthwise. The quarter panels project 1 inch behind the seat pillar, after the manner of the Howell Gig. The front seat-bar instead of being framed rigidly to the riser, is provided with a hinged joint. This leaves the body free to conform to the twisting of the running-part without injury to its corners. This sleigh has a long scroll dash and snow-screen, as with the Windsor. Plated knobs are fastened to the ends of the scroll.

It has a bracket front and a metallic sunken bottom. The standards are curved on the line of beauty or ogee.

The dimensions of this pattern are as follows: Height of standards front and back, 20 in.; ditto, middle, 18 in. Height of lower back panel, $11\frac{1}{4}$ in.; ditto, upper panel, $18\frac{1}{2}$ in. Height of lower side panel, 10 in.; ditto, upper panel, $8\frac{1}{2}$ in.; and ditto, dash with screen, $47\frac{1}{2}$ in. Width of body on bar, 25 in.; ditto of seat, 35 in.; ditto across top of back, $30\frac{1}{2}$ in.; ditto across top of dash, 28 in.; ditto across top of dash on roll, $31\frac{1}{2}$ in. Length of body on rails, 34 in. Depth of seat, $20\frac{1}{2}$ in. Height of seat back above seat, $19\frac{1}{2}$ in. Height of seat sides above seat, $7\frac{1}{2}$ in.

The standards are entirely covered on the front and back sides with thin plates of iron, riveted, instead of being ironed on the inner and outer

dges, as in the ordinary way. Long braces, $\frac{5}{16}$ in., round steel. Slue races, swelled in middle to $\frac{7}{16}$ in. Shoes, $\frac{3}{4} \times \frac{5}{16}$ in., steel. Oxidized bronze seat and dash handles are used. Track, 37 in., from out to out.

48. THE WINDSOR SLEIGH.

This sleigh is designed to combine elegance with the greatest possible amount of comfort. It has a very wide seat of $35\frac{1}{2}$ in. in width, 19 in. in depth, and with a back $21\frac{1}{2}$ in. high. It is low-hung, but high-sided, and has a novelty in what might be called the "boot," which is formed by extending a panel across the front of the side panels, thus providing a most convenient place for the feet and robes. The body has a lower concave panel, and the upper one convex, as shown in the cut. The dash has the long scroll curve and screen, as seen in the Poyen sleigh, but it is of course modified to harmonize with the heavier lines of this sleigh. A very pretty effect is also produced by curving the dash handles over, after they leave the screen, and hanging little bells in the ends. The combination of two pairs of standards with the scroll iron-work will be noticed, and they add greatly to the strength of the sleigh, while they also harmonize well with the design.

The principal dimensions of this pattern are as follows: Length of standards from runner to rail, $15\frac{1}{2}$ in. Height of back panels, upper, 2 in.; lower, 13 in.; ditto side panels at pillars, $18\frac{3}{4}$ in. over all; upper, $2\frac{1}{2}$ in., lower, $6\frac{1}{4}$ in. Height of dash with screen, 47 in. Width on bar, 26 in.; ditto across top of back, 38 in.; ditto across top of dash, 29 in.; ditto across top of dash at roll, $32\frac{1}{4}$ in. Length of body on rails, 3 in. Shoes, $\frac{7}{8} \times \frac{3}{8}$ in., steel. Slue braces, $\frac{7}{16}$ in., round steel. Scroll ironwork, $\frac{3}{4}$ in. oval iron. Oxidized bronze dash handles. Track, 37 in., from out to out.

* * *

The majority of such sleighs have dark green panels, and carmine running-parts. The striping varies in color. The color of the trimming matches the painting, and great attention is paid to harmonizing the colors of the trimming and painting as closely as possible. The plumes are of different colors, but always match either the color of the body or running-part. Brass mountings are preferred for the majority of such sleighs.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING MAY, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between May 6th and 27th of the current year:

MAY 6th, 1884.

Vehicle Axle.....	J. J. Devine, ¹	Plymouth Meeting, Pa.
Carriage Top.....	H. Buchholz and W. Morris, Zanesville, Wis.	
Securing Carriage Window Frames to Curtains.....	A. S. Parker.....	Cincinnati, O.
Road Cart.....	C. H. Straight.....	Bryan, O.
Vehicle Hub.....	J. Mouk.....	Lynn, Mass.
Side-bar Vehicle.....	H. W. Moore.....	Olean, N. Y.
".....	C. W. Saladee.....	Torrington, Conn.
Vehicle Spring.....	J. D. Dorsey.....	Greenville, Ill.
Wagon Running-gear.....	P. Gendron, ²	Toledo, O.
Spring-board Wagon.....	H. L. Sherwood.....	North Hoosick, N. Y.
Whiffletree.....	E. R. Annable.....	Paw Paw, Mich.

MAY 13th, 1884.

Carriage Apron.....	A. C. Holden.....	Pittston, Pa.
Road Cart.....	D. Argerbright.....	Troy, O.
".....	C. W. Saladee.....	Torrington, Conn.
Wagon End-gate.....	H. H. Perkins.....	Kewanee, Ill.
Hub Attaching Device.....	G. H. Hombach.....	St. Ignace, Mich.
Wheel Hub.....	J. P. Warner.....	Dowagiac, Mich.
Shaft Support.....	J. F. Pace.....	Arcadia, La.
Sleigh.....	W. H. Winne.....	Meridian, N. Y.
Thill-coupling.....	A. O. Bousteel, ³	Wilson, N. Y.
Side-bar Vehicle.....	J. Taylor.....	Newbury, S. C.
Vehicle Spring.....	E. P. Carter.....	Arcade, N. Y.
Two-wheeled Vehicle, (4 patents)	C. W. Saladee.....	Torrington, Conn.
Vehicle Wheel.....	F. L. Kirkbride, ⁴	Wyandotte, Kan.
".....	L. A. Powers.....	Bloomington, Wis.
".....	M. L. Smith, ⁵	Lockport, N. Y.
Wagon-jack.....	G. B. Clark.....	Bozrahville, Conn.
Wagon Running Gear.....	W. H. Fanning.....	Lapeer, Mich.
".....	A. Womack.....	Falk's Store, Idaho.
Wagon-skein.....	C. Pierce.....	Lisle, N. Y.
Wagon-spring.....	C. Fallesen.....	Brooklyn, N. Y.

MAY 20th, 1884.

Carriage Bow.....	F. A. Wittich.....	Ashtabula, O.
Carriage Curtain.....		
Strap-fastening Loop.....	H. Higgin.....	Newport, Ky.
Sliding Carriage Door.....	F. P. Stone.....	Chicago, Ill.
Carriage Top.....	R. H. Pfaff.....	Ashtabula, O.
Road Cart.....	O. J. McCollum and C. O. Straw, Aurora, Ill.	

Wagon End-gate.....	C. Cruzan.....	Willow Springs, Kan.
".....	G. W. Hurd.....	Meadville, Mo.
Bob-sleigh.....	E. A. Harding.....	Harbor Springs, Mich.
Thill-coupling.....	M. E. Campany.....	Muskegon, Mich.
".....	R. H. P. Ellis.....	Baltimore, Md.
".....	U. H. Wright.....	Tarrytown, N. Y.
Vehicle Running-gear.....	H. W. Chamberlain and F. G. Harris, ⁶ Lockport, Ill.	

MAY 26th, 1884.

Road Cart.....	H. M. Wallis, ⁷	Racine, Wis.
Wagon End-gate Lock.....	A. Sproul, ⁸	Hannibal, Mo.
Hold-back for Pole Irons of Wagons.....	W. D. Hatch.....	Olean, N. Y.
Sleigh Shaft Iron.....	H. H. Richards, ⁹	Racine, Wis.
Bob-sleigh.....	W. C. Case.....	Limerick, N. Y.
Thill-coupling.....	E. S. Buzby.....	Bordentown, N. J.
".....	C. M. Westcott.....	El Paso, Ill.
Wagon Tongue Support.....	W. P. Martin.....	Chico, Cal.
Vehicle Dash-board.....	T. H. Mader.....	Zanesville, O.
Spring Vehicle.....	J. B. Armstrong, ¹⁰	Guelph, Ont., Can.
Vehicle Spring.....	W. S. Everett.....	Hyde Park, Mass.
Vehicle Turning-gear.....	F. Bremerman, ¹¹	Indianapolis, Ind.
Two-wheeled Vehicle.....	J. C. Bach, ¹²	Hillsdale, Mich.
".....	J. C. Blocher.....	Lima, O.
".....	W. M. Buchanan.....	Columbia, Tenn.
".....	W. S. Frazier.....	Aurora, Ill.
Dumping Wagon.....	F. A. Graff and L. C. Hipple, New-Albany, Ind.	
Wagon Jump-seat.....	C. H. Stratton.....	Salem, O.
Sail Wagon.....	J. A. Aspinwall.....	Bay Ridge, N. Y.
Wheel.....	Reuben Ellwood and H. H. Stangaard, ¹³	Sycamore, Ill.

¹ Assignor of one-half to Thomas Lynch, same place.² " to the Gendron Iron Wheel Co., same place.³ " of one-half to O. S. McChesney, same place.⁴ " of one-half to N. C. Duvall, Kansas City, Mo.⁵ " of one-third to Jonas Ferry, Batavia, N. Y.⁶ " of one-half to Moses S. Greenebaum and Marx A. Lesem, both of Chicago, Ill.⁷ " to the Mitchell & Lewis Co., same place.⁸ " to himself and Fred. C. Stevens, Attica, N. Y.⁹ " of one-half to W. S. Buffham and T. Dickinson, both of same place.¹⁰ " to the Guelph Carriage Goods Co., (Limited) of same place.¹¹ " to the Emerson-Fisher Company, Cincinnati, O.¹² " to himself and Henry Allis, same place.¹³ " to the R. Ellwood Mfg. Co., same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.



NEW-YORK CITY.

LAZIER, THE SWINDLER, looks forth from our second "Office-page" in this issue, affording an inexpensive means of making his acquaintance. We will be much obliged if all readers who recognize this face as that of the confidence operator who once swindled them, will promptly inform us of that fact and furnish us with the particulars, that we may thus complete our files containing a record of his crimes.

A LARGE MORNING MAIL.—Nearly everybody likes to receive letters, so long as he is under no obligation to answer them. This July *Hub* contains a mail-bag crammed with fresh letters, written by your co-laborers, the carriage-makers, and relating to a subject in which you are particularly interested at this time, namely: the present outlook of the carriage trade. We feel sure you must be curious to know what Smith, Jones, Brown and Robinson have to say about their business.

WHO IS "BROWN PAPER?"—The report of the Jury on Award of *Hub* Prizes, made public in our last number (page 174), contained the announcement that our first prize in the class of Trimming Designs had been awarded by them to an anonymous correspondent signing himself "Brown Paper." On June 17th we received a letter from Mr. Geo. S. Freeman, of Merri-mac, Mass., containing proof that he is "Brown Paper," and the rightful owner of the silver medal, \$20 in cash, and *Hub* subscription, together comprising the award above alluded to, which have consequently been duly forwarded to him.

THE AMERICAN VARNISH TRADE deserve great credit for the liberality and energy with which they lent a helping hand to the Canadian authorities in tightening the net about Lazier, the traveling swindler, whose portrait in our Office Department, this month, temporarily transforms *The Hub's* portrait collection into a "rogues' gallery." Nine times this man had been arrested within nine years past; eight times he escaped justice, and we confidently believe he would still be at large and at his accustomed tricks, were it not for the fact of the combination effected by the varnish-makers, and the active campaign which they then waged against him.

NEW-YORK CITY—continued.

PROFIT AND LOSS ACCOUNT.—Brewster & Co. figure among Ferdinand Ward's creditors to the extent of "One curtain omnibus, with pole, \$1,154.50."

THE MEDICAL PAPER which we expected to present this month to our trimmer friends, is necessarily postponed, as Dr. Partridge is absent from the city, and has thus escaped being interviewed.

PERSONAL.—We regret to announce that Mr. John W. Britton, of this city, has been confined to the house, for nearly a month past, by a painful but not dangerous illness. He is now at Saratoga Springs, and rapidly recovering his wonted health and good spirits.

SELF-EXPLANATORY.—"New-York, June 19, 1884. Editor of *The Hub*—Dear Sir: Some interested party in Cincinnati is spreading the report that our suits brought conjointly with Crandal, Stone & Co., against Kemper Bros., have been dismissed, with costs to plaintiffs. There is no truth whatever in this statement, and we beg to caution you against a possible attempt by the person in question to smuggle the same into your paper. Our suits are progressing, and we shall notify you of the decision as soon as given.—METAL STAMPING CO.

SECOND-PRIZE WORKING DRAWING.—The Second-prize Working Drawing of a Physicians' Phaeton, by Mr. James Burns, of New-Haven, accompanies this number in the form of a loose sheet. Mr. Burns is a fortunate man! His honest winnings in the recent competition, include *The Hub's* cash prize of \$25 and the Dexter Spring Co.'s extra cash prize of \$25 (both for this same working drawing); and also our first prize of \$10 cash and a \$10 silver medal, for his "Best Practical Hint." This happy result was good fortune, but not luck, for it was due to Mr. Burns's enterprise and skill.

NEW-YORK STATE.

BOOMING.—The Isham Wagon Co., Plattsburgh, N. Y., have recently made some very important improvements in their sewing-machine wagon spring, that adds greatly to its value. The trade will soon hear from the company through the journals.

AUBURN, N. Y.—We acknowledge with pleasure the receipt of "Auburn, N. Y.: Its Facilities and Resources," by D. Morris Kurtz. It gives a succinct and interesting history of the city, and notes the wonderful growth of many of its business houses, notably the E. D. Clapp Mfg. Co. and Sheldon & Co.

A STRIKING ANNOUNCEMENT.—Mr. K. A. Hughson, carriage and sleigh-builder, of Rochester, N. Y., has just distributed among his out-of-town customers, a circular announcing the withdrawal of his traveling representatives and giving his reasons for so doing, which strikes us as particularly happy, being courageous, business-like, well-expressed, and in all respects taking.

READY FOR ORDERS AGAIN.—The burning of the spring factory of D. W. Shuler, at Amsterdam, N. Y., has already been reported. We counted on Mr. Shuler's well-known energy to soon have things in running order, and the following circular justifies our prediction. Under date of May 22, he says: "I take pleasure in informing you that we shall have our works rebuilt and ready for operation about the 1st of June, and shall be pleased to have your orders, which will have prompt attention after that date."

NEW CARRIAGE PAINT-SHOP.—Mr. Peter Bertsch, of Brooklyn, N. Y., making a specialty of carriage and sign painting, has erected, at the corner of Broadway and Penn-st., a new and commodious paint-shop, one story high and occupying four lots of ground, adjacent to his old stand at No. 374 Broadway, which he still occupies as well. The new shop is about 15 ft. high inside, with flat roof and large skylights and sash-windows, so as to afford abundant ventilation and light. On both street fronts all the doors are made with sashes half-way down, thus giving still more light. The floor is of concrete, laid direct on the ground. A 20-horse-power boiler, with pipes and heaters all around the building, affords abundant facilities for heating the shop in winter, and the temperature can be regulated to 65 or 70 degrees Fah., if necessary, in all parts.

TRADE REPORT FROM BATAVIA, N. Y.—The carriage trade has been unusually prosperous in Batavia this spring. Builders are now running on ordered work altogether. A. Hiller is the leading builder, and runs two fires, putting up fine work in phaetons and buggies, and also having a large run on express wagons. Peter Broadbrooks has just completed a new brick shop. He runs 3 fires, and does all kinds of blacksmith work and some carriage work. The upper story of his shop is occupied by Wm. Wood, who carries on carriage and sign painting. He was formerly with A. Hiller, but C. E. Vader runs the paint-shop now connected with Mr. Hiller's factory. J. S. Robinson, of Massachusetts, is selling some fine work built in Amesbury, and is having good success. He has been in Batavia only a year, but, being a good salesman and a strictly reliable man, he has speedily developed a fine trade in surries, double-suspension phaetons, Cornings, and also some heavy work.

NEW-ENGLAND.

PERSONAL.—Mr. W. H. Atwood, of Messrs. Henry Hooker & Co., New-Haven, left that city on May 10th, for a trip around the world. It will be solely a business trip, in the interest of the firm named. One of the New-Haven papers put it that he is "going to visit every country of any consequence on the globe." This is perhaps a little strong, but Mr. Atwood is going to take in a good deal (in the way of orders as well as territory, we hope) before he gets back.

PRESIDENTIAL.—Among recent shipments by the Abbot-Downing Co., of Concord, N. H., was a coach made to the order of President Gonzales, of Mexico. The vehicle was built under special instructions from His Excellency, and adapted both for city use on feast days, and for traveling purposes when taking long journeys. Many novel features were introduced, combining comfort with convenience; and the painting, well set off by Valentine's varnish, was characteristic of the highest style of the art. The harness accompanying the coach was gotten up in the most elaborate city style, and profusely decorated with the President's monogram in silver. The gearing is arranged for eight horses or mules, to be driven in the conventional Mexican style,—that is, with two at the wheel, four abreast in front, and two in front of the four. So noteworthy a shipment as this may be counted a national success, as it seems likely to prove the best kind of a bid for further orders from Mexico.

MIDDLE STATES.

A SUPPLEMENT.—H. M. Strieby & Co., of Newark, N. J., have issued a supplement to their catalogue, which gives prices and illustrations of some of their more important specialties.

ENGLISH ORDER FOR AMERICAN WHEELS.—H. M. DuBois, of Philadelphia, is engaged in filling an important wheel order for a customer in London, Eng. They are large, with oak spokes, sharp edge, and evidently intended for Hansom Cabs. It is not impossible that we may have them back again in this country, in connection with some of the English cabs recently ordered by American companies.

FAILURE.—E. Fitz-Gerald & Co., carriage-builders, of Philadelphia, Pa., successors to the former firm of Jos. Beckhaus & Co., who retired a few years ago with a competency, have been sold out by the sheriff.

SAMUEL HALSEY, Newark, N. J., died June 17th, aged 81 years. He built up a large morocco manufactory, which in recent years has been managed by his son, ex-Congressman George A. Halsey. At his funeral, his two sons, three grandsons and a nephew acted as pall-bearers.

D. M. LANE'S SONS, of Philadelphia, Pa., report trade good, and sales this spring ahead of last year's. They recently shipped a four-in-hand "Tally Ho" Coach to Louisville, Ky., and have another under way to be used in Philadelphia by a member of the Hare and Hounds Club. They are very busy in their repairing department. A private telephone connects their works in West Philadelphia with their repository on Chestnut-st.

THE SPOKE TRADE.—John Klaer, spoke manufacturer, of Stroudsburg, Pa., writes as follows: "My spoke factory was destroyed by fire on February 17th last. I have commenced to rebuild, and will try to get running again as soon as possible. The spoke trade appears to be dull, and there is no great inducement to rush things. I propose to make all the improvements possible in my new factory; and as soon as I can get spokes ready for market, I will inform my customers through *The Hub*."

WESTERN STATES.

CATALOGUE.—We beg to acknowledge receipt of the catalogue of the Huston Spring Wagon Co., of Columbus, O. and Kansas City, Mo. We only regret to see, in an otherwise fine catalogue, such imperfect wood-cuts, some of which do the work of this really good house great injustice.

BRAVO!—The Columbus Buggy Co., Columbus, O., have notified their employes that during the hot weather their works will shut down at 3 P. M. on Saturdays, thus giving the workmen time for recreation. This is a wise as well as generous move, and we feel sure the company will not be losers by it.

FIRE.—The following extract is from a circular issued by Sherwin, Williams & Co., Cleveland, O.: "We have to inform our friends that the second fire at our works, on May 10th, was much more disastrous than the one on May 2d, and yet our large seven-story building, containing general offices and manufactured stock, is entirely uninjured. The largest building of our works proper, was not burned. Our boilers, steam pumps and engines were so little damaged that we can have them running again within a few days; and, although the building containing the quick-drying color department, with its contents, was nearly destroyed, we have mills enough left, which will be running on that class of goods in another place within a few days. The large building devoted to the manufacture of prepared paints was entirely destroyed. Arrangements are already being made to rebuild the burned portions of our works, to have a capacity fully double that before the fire. We will soon notify our regular customers when we can unquestionably fill all their orders. In the meantime we will furnish such goods as we have in our stores here and in Chicago."

TRADE REPORT FROM CHICAGO.—Items of news concerning the carriage trade of Chicago, are not over-abundant just now. The prospect among builders seems to be fair, but there is fear of overdoing matters, their experience of a few months back being not yet forgotten, and no heavy deals will be made until a fair promise is observable. Chicago dealers and manufacturers in heavy work have enjoyed a fair trade this spring in orders, and repository stock is picking up some; but most of them were very dull all last winter. In light work nothing specially new has been brought out, but it must be said that the grade is a great deal better than formerly, and competition is much closer. Prices, however, promise to hold up. The "two-wheel craze" is jumping right along, and will cut the buggy trade all to pieces. It was thought that, by spring, the boom would be over; but, on the contrary, it seems to be more healthy than ever. The Perry Cart holds its own, and the monopoly of manufacture for the West and Northwest is held by the Abbott Buggy Co., who have recently been turning out 30 per day, finished in three styles, with or without top. This firm is also doing a fair trade in Timken-spring work, which has been their specialty for years. Studebaker Bros. Mfg. Co. are working a nice trade in an improved five-glass landau, and their general trade is good, considering the situation. P. C. Smith & Co., of Wabash-ave., have done well recently in landaus, and there is some talk of their taking new quarters, but particulars have not been learned. C. P. Kimball & Co. are doing a fine trade in all kinds of work, their ample show-rooms are still well filled with the best class of carriages. The New England Carriage Co. (Manager Dinsley) are working up a good trade, the Perry Road Cart being the prominent vehicle. H. J. Edwards & Sons, of Jump seat fame, are also doing a nice trade in their specialty. J. L. Clark & Son (Manager Munsell) speak encouragingly, and their specialty, a side-bar wagon seemingly well worthy of the claim they give it, has met with much success. Geo. W. Bohannon, of Wabash-ave., complains of close times, but looks forward to a good trade during and after the racing season. I. S. Tower & Bro., of Clinton-st., are before the public with a large and varied stock, and report a fair trade. Hill & Killam, of Wabash-ave., are pushing the Pennoyer side-spring Thos. H. Brown, of sulky renown, is in a new building, corner State and 20th sts., opposite the Abbott Buggy Co., and reports trade good. The Hansom Cab Co. is very slow in bringing its vehicles before the public, and it looks as if the Gurney Cab was to be the favorite after all. Judging from remarks made by interested parties, it would seem as if the Hansom Cab was to go on the streets to show rather than use.—MARSHALL.

FOREIGN.

COACHING MEETS.—The spring meet of the London Coaching Club was held at Hyde Park, on May 17th; and that of the London Four-in-hand Club, on May 21st.

CONCERT.—The eighth annual concert in aid of the Benevolent Fund of the London Saddlers and Harness Makers' Trade Protection Society took place on Thursday evening, May 8th, at St. Andrew's Hall, London. There was a large attendance, and the entertainment proved highly enjoyable, and in all respects successful.

PERSONAL.—Mr. William Heywood, for many years managing foreman at Messrs. Windover & Son's royal carriage works, Huntingdon, Eng. has severed his connection with that house, and is succeeded by Mr. Geo. H. Budd. Mr. Heywood has accepted an engagement with Messrs. Morgan & Co. at Kingston, Surrey, Eng.

PERSONAL.—The American friends of Mr. John C. Windover, of Huntingdon, Eng., who represented the firm at the Philadelphia exhibition will regret to learn that that gentleman recently sustained a serious injury caused by an accident while handling the ribbons in tooling a tandem pair of thoroughbreds. It happened on the 26th of April. He, with his brother, Mr. E. Windover, were taking a tandem drive (and he is a most accomplished whip) when a pig from a neighboring farm crossed the road in front of the leader, which, thus startled, dashed away at a fearful pace, completely smashing the vehicle and precipitating Mr. J. C. Windover upon his head into the road, causing severe injuries to his face, left eye and head, and fracturing the cartilage of his nose. He was immediately conveyed to a neighboring farm, and after examination by a medical man, was removed to his home at Huntingdon, four miles distant, where, under the care of an eminent medical gentleman, he is slowly approaching convalescence. Mr. E. Windover escaped injury.

DIPLOMA
AWARDED TO

VALENTINE'S

AT THE
Amsterdam International
EXHIBITION.



NEW-YORK,
CHICAGO.

Valentine & Company,

BOSTON,
PARIS.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Conrad B. Day & Co., Philadelphia, Pa... 284
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct.....
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York... 312
Kemper Bros., Cincinnati, O..... 284
Ten Eick & Kent, 1553 Broadway, New-York 284
S. D. Kimbark, Chicago..... 295

AXLES.

- R. Cook & Sons, Winsted, Ct..... 297
Carriage and Wagon Axles.
Dalzell & Co. 300
Improved Collinga Axle.
Goodyear & Ives, New-Haven, Ct..... 284
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O.....
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 285
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilmington, Del..... 310
The Quaker Axle.
Wood, Smith & Co., Fort Plain, N. Y..... 292
Fort Plain Spring and Axle Works.

BODIES.

- F. T. Clymer, Wilmington, Del..... 302
Carriage Bodies and Carriage Parts.
Jas. Driscoll & Sons Co., Springfield, O.... 312
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 280
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago..... 295
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O..... 300
Bodies.

BOLTS.

- Norwich Bolt Works, Norwich, Conn..... 297
Genuine Norwry Iron Bolts.

CARRIAGES FOR THE TRADE.

- D. A. Altick & Sons, Lancaster, Pa..... 292
M. L. Albrecht, Fort Wayne, Ind..... 283
Heath Carts and Gears.
Anderson, Harris & Co., Cincinnati, O.... 295
Carriages, Buggies and Phaetons.
D. Argerbright, Troy, O..... 296
Road Cart.
F. A. Babcock & Co., Amesbury, Mass.... 293
The Clarkson Road Cart.
S. R. Bailey, Amesbury, Mass.... 3d cover page
Sleighs in the Wood and Iron.
Forder & Co., Limited, London, Eng..... 309
The Royal Hansom.
L. B. Johns, Fort Wayne, Ind..... 302
Road Carts.
Northwestern Sleigh Co..... 310
Carts.
Renick, Curtis & Co., Greencastle, Ind.... 283
The Renick & Curtis Patent Road Cart.
L. & M. Woodhull, Dayton, O..... 286
Buggies, Phaetons and Carts.
Youngstown Carriage and Wagon Co., Youngstown, O..... 282
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 284
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa. (Branches: New-York, Boston and Chicago.) Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 305
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O..... 310
The E. D. Clapp Mfg. Co., Auburn, N. Y.. 298
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
C. B. Clarke, St. Louis, Mo..... 301
Silvester Patent Tire.
C. Cowles & Co., New-Haven, Ct..... 280
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
Cortland Box Loop Co., Cortland, N. Y... 297
Cortland Buckle Loop.
Crandal, Stone & Co., Binghamton, N. Y. 294
Carriage Hardware.
Dayton Malleable Iron Co., Dayton, O.... 303
Carriage Hardware.
Eberhard Mfg. Co., Cleveland, O..... 282
Carriage, Wagon and Saddlery Hardware.
W. M. Farr, Dowagiac, Mich..... 309
Common Sense Sand and Mud Band.
M. T. Gleeson, Columbus, O..... 299
Fine Carriage Mountings.
Herbrand Co., Fremont, O..... 299
Herbrand Gear Irons.
Geo. W. Kerr, Bridgeport, Ct..... 299
Cart Irons.
S. D. Kimbark, Chicago..... 295
Carriage and Wagon Hardware.
Kopsch & Polya, New-York City..... 309
Carriage Door Lock.
Geo. G. Larkin..... 288
Carriage Top Stays.
Metal Stamping Co., New-York..... 295
Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)
Queen City Forging Co., Cincinnati, O.... 308
Carriage Hardware.
H. B. Pitner & Co., Plymouth, Ind..... 297
Whip and Line Holders.
Rubber Step Mfg. Co., Boston, Mass..... 303
The Rubber Covered Carriage Step.
H. D. Smith & Co., Plantsville, Ct.....
..... 4th cover page
The "Encircled S" brand of Fine Carriage Forgings.
H. M. Strieby & Co., Newark, N. J..... 292
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
Topliff & Ely, Elyria, Ohio..... 293
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
Trenton Iron Co..... 286
Wire for Ties and Can Openers.
Vehicle Shaft Supporter Mfg. Co., Cincinnati, O..... 294
Iron Shifting Rails.
White Mfg. Co., New-Haven, Ct..... 297
Pole Crabs.

IRON AND STEEL.

- McClure & Field, Boston, Mass..... 282
Specialty: B. & M. Tire Steel.
S. D. Kimbark, Chicago..... 295
American and Norway Iron, Steel Tire, etc.
Wm. & Harvey Rowland, Frankford, Philadelphia 291
Iron and Steel. (See also Springs.)

LAMPS.

- C. Cowles & Co., New-Haven, Ct..... 280
(See also Hardware and Mountings.)

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 288
A Substitute for Leather.
T. P. Howell & Co., Newark, N. J..... 300
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich..... 305
Little Giant Hub-Borer.
W. F. & John Barnes, Rockford, Ill..... 307
Foot and Steam Power Machinery.

- Bentel, Margedant & Co..... 297
Woodworking Machinery.
Capital City Mach. Works, Columbus, O... 282
Standish Imp. Foot Power Hammer or Oliver.
Chapman & Goss, Milwaukee, Wis..... 294
Universal Polishing Machine.
Combs & Bawden, Freehold, N. J..... 288
Tire and Axle Upsetting Machine.
The Egan Co., Cincinnati, O..... 303
Carriage Wood-working Machinery.
Defiance Machine Works, Defiance, O..... 282
Hub, Spoke, Wheel and Bending Machinery.
J. A. Fay & Co., Cincinnati, O..... 298
Woodworking Machinery.
George W. Heartley, Toledo, O..... 308
Little Giant Axle Box Press.
Mason Wheel Co., Crown Point, N. Y..... 288
Wheel Tenoning Machine.
H. A. Moyer, Syracuse, N. Y..... 302
Hub Boring and Boxing Machine.
C. F. Pettingell & Co., Amesbury, Mass... 305
Full line of Patented Carriage and Wheel Machinery.
Uhler & Benton, New-York..... 2d cover page
The Lewis Axle Machine.
Wiley & Russell Mfg. Co., Greenfield, Mass. 2d cover page
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 292

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O..... 282
Coach and Car Colors and Varnishes.
Carey, Ogden & Parker, Chicago, Ill.....
..... 3d cover page
Coach and Car Colors.
F. W. Devoe & Co., New-York..... 292
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa.... 306
Ivory Drop Black.
Miles Bros. & Co., New-York..... 306
Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.
Chas. Moser & Co., Cincinnati, O..... 297
Palm & Fechteler, New-York..... 281
Transfer Ornaments.
A. Smith & Sons, New-York City 281
Chas. D. Thum, Philadelphia, Pa..... 308
Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.
Jno. L. Whiting & Son, Boston, Mass..... 311
Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.

PUBLISHERS.

- "The Hub," New-York City.....
..... 283, 287, 288, 300, 311
E. Taylor & Co., London, Eng..... 302
"The Stable."
Wm. M. Bradley & Bro., Philadelphia, Pa. 306
Mitchell's Atlas.

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind..... 295
Gears.
Bridgeport Spring Co., Bridgeport, Ct..... 292
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.
Canton Spring Co., Canton, O..... 294
Carriage, Wagon and Seat Springs.
Cleveland Carriage Bow Co..... 298
Sell's Platform Gears.
Dexter Spring Co., Hulton, Pa..... 291
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.
Henry Spring Co., Winsted, Conn..... 310
The Henry Single-leaf Rib Spring.
Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa..... 285
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)
Longstreth & Ayer Mfg. Co., Columbus, O. 296
The L. & A. Adjustable Side-spring.

Magner & Thomas Spring Co., Wellsville, N. Y.....	299
Improved Thomas Spring.	
T. D. Olin & Co., Cincinnati, O.....	298
The Olin Springs.	
Rice Spring & Carriage Co., Pittston, Pa..	283
Rice Carriage Springs.	
C. W. Saladee, Torrington, Conn.....	301
"Duplex Springs."	
Wm. & Harvey Rowland, Frankford, Philadelphia, Pa.....	291
Fine Springs from Swedish Stock. Also Iron and Steel.	
The Shuler Springs and Gears.	
D. W. Shuler, Amsterdam, N. Y.....	285
Geo. F. Thompson, Oshkosh, Wis.....	289
Thompson's Improved Climax Gear.	
Henry Timken, St. Louis, Mo.....	290, 302
The Timken Cross-Spring.	
Tomlinson Spring Co., Newark, N. J.....	284
Fine Springs and Axles.	
R. Tomlinson Spring and Axle Works, Bridgeport, Ct.....	308
Springs: Specialty, The Hamlin.	
Tuthill Spring Co., Chicago, Ill.....	297
Fine Springs, including Timken, Penroyer, Stickle, Groot, Brewster, and other patent Springs.	
Whitney Spring Co., Poughkeepsie, N. Y.	285
The Whitney and Storm Side-bar Springs.	
C. R. & J. C. Wilson, Detroit, Mich.....	291
The Wilson Side-bar Cross-spring.	
Wood, Smith & Co., Fort Plain, N. Y.....	292
The American Standard Springs and Axles.	

TOOLS.

Chambers, Bros. & Co., Philadelphia, Pa..	308
Bolt and Rivet Clippers.	
Cincinnati Screw and Tap Co., Cincinnati, O.	311
S. D. Kimbark, Chicago.....	295
All latest improvements in Tools and Machines.	
J. W. Manneer, Rochester, N. Y.....	297
Manneer's Bench Drill.	
Porter & Wooster, Boston, Mass.....	303
"Easy" Bolt Clipper.	

TRIMMERS' MATERIALS.

Active Manufacturing Co., Cincinnati, O...	310
Carriage Dashes. (See also Hardware.)	
American Tack Co., Fairhaven, Mass.....	281
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)	
Ashtabula Carriage Bow Co., Ashtabula, O	296
Leather Covered Bow.	
Bridgeport Coach-Lace Co., Bridgeport, Conn.....	284
Coach Laces and Trimmings.	
Cleveland Dash Co., Cleveland, O.....	289
Carriage Dashes and Fenders.	
Cleveland Carriage Bow Co., Cleveland, O.	298
Leather-covered Carriage Bows.	
Cortland Box Loop Co.....	297
(See Hardware.)	
Crandall, Stone & Co., Binghamton, N. Y..	294
Carriage Trimmings.	
Durham & Wooster, New-Haven, Conn...	279
English Canopies	
Excelsior Top Co., Cortland, N. Y.....	286
Carriage Tops.	
English & Mersick, New-Haven, Conn....	
Carriage Broadcloths, Canopies and Canopy Top Fringes.	
Hardt, Von Bernuth & Co., New-York City,	294
Carriage Cloths, etc.	
Harris Button-Hole Co., Lim., New-York.	296
Pat. Crimped Leather Knob Eyclets.	
Japanese Hair Mfg. Co., Jersey City, N. J.	305
Japanese Hair and Japanese Moss.	
L. B. Johns, Fort Wayne, Ind.....	302
Carriage Tops, Cushions, etc.	
S. D. Kimbark, Chicago.....	295
Cloths, Leather, etc., etc.	
Chas. P. Ketterer, New-York.....	286
Wagon Curtain Fastener.	
C. Z. Kroh & Bro., Toledo, O.....	307
Tops, Cushions, Backs, Falls, etc.	
Longstreth & Ayer Mfg. Co., Columbus, O.	296
Dashes, etc.	
Metal Stamping Co., 64 Reade-st., New-York,	295
Parker Carriage Goods Co., Cincinnati, O.	281
Carriage Trimmings in great variety.	
Peel & Elster, Springfield, O.....	289
"IXL" Dash Molding and Neck-yoke.	
F. J. Schmid, New-York.....	305
Hand-made Coach Laces, and all kinds of Trimming Materials.	
Ten Eick & Kent, New-York City.....	284
Carriage and Sleigh Materials of every description.	
Topliff & Ely.....	293
See Hardware.	

VARNISHES, JAPANS, ETC.

Moses Bigelow & Co., Newark, N. J.....	289
Established 1845. Fine Coach and Car Varnish Manufacturers.	

Berry Bros., Detroit, Mich.....	280
Coach and Railroad Varnishes.	
John Babcock & Co., Boston, Mass.....	2d cover page
Billings, Taylor & Co., Cleveland, O.....	282
Coach and Car Colors and Varnishes.	
F. W. Devoe & Co., New-York.....	292
Carriage, Coach and Car Colors.	
Felton, Rau & Sibley, Philadelphia, Pa....	306
Wm. Harland & Son, Merton, Surrey, England.....	2d cover page
On sale in America by first-class dealers in principal cities.	
Hildreth, Templeton & Co., New-York....	3d cover page.
Superfine Coach and Car Varnishes.	
King Varnish Co., Akron, O.....	279
Fine Coach Varnishes.	
Moller & Schumann, Brooklyn, N. Y.....	2d cover page
O'Brien Varnish Works, South Bend, Ind..	308
Parrott Varnish Co., Bridgeport, Ct.....	2d cover page
C. C. Reed & Co., New-York City.....	307
A. Smith & Sons, New-York City.....	281
Stimson & Co., Boston, Mass.....	309
Fine Coach and Car Varnishes.	
Valentine & Company, New-York.....	277
L. M. West, Rockford, Ill.....	305
Carriage-top Dressing.	

WHEELS AND WHEEL STOCK.

Bollenbacher & Sons, Bloomington, Ind...	306
Spokes.	
S. N. Brown & Co., Dayton, O.....	309
Superior Wheels, Hubs, Spokes, etc.	
Crane & McMahon, 38 Park Place, N. Y... (Salesroom, New-York.)	284
Spokes, Rims, etc., and Hickory, Oak and Ash Plank.	
Howard M. DuBois, Philadelphia, Pa. . .	286
Wheels, Hubs, Spokes, etc.	
Hagerstown Spoke Works, Hagerstown, Md.	298
Hoopes, Bro. & Darlington, Limited, West Chester, Pa.....	294
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.	
Phineas Jones & Co., Newark, N. J.....	303
Patent and Plain Wheels, Spokes, Hubs, etc.	
Lambertville Spoke Mfg. Co., Lambertville, N. J.....	284
Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.	
Longstreth & Ayer Mfg. Co.....	296
See Springs and Gears.	
Philip Lebzelter, & Co., Lim., Lancaster, Pa.	284
Fine Wheels and Wheel Material.	
New-York Sarven Wheel Co., New-York..	307
Branch of Royer Wheel Co., Cincinnati, O., which see.	
Rochester Wheel Co., Rochester, N. Y....	301
Wheels, Hubs, Spokes, Rims.	
Royer Wheel Co., Cincinnati, O.....	307
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.	
F. Seidle, Mechanicsburg, Pa.....	292
Wheels and Materials. Shafts, Carriage Poles, Bows, Sleigh Runners, etc. Specialty: The Phoenix Wheel.	
Springer, Morley & Gause Co., Wilmington, Del.,	309
Wheels and Wheel Material.	
Winch & Sons, Bryant, Ind.....	292
White Elm Hub Blocks.	

WOODWORK AND MISCELLANEOUS.

Combination Seat Co., South Bend, Ind...	305
Perkins' Patent Veneer Seats.	
E. F. French, New-York.....	
Built-up-wood Roofs.	
Herring & Co., New-York City.....	312
Herring's Champion Safes.	
S. D. Kimbark, Chicago.....	295
Burr Patent Bodies. Carriage and Wagon Wood Material.	
John C. Konrad, New-York.....	310
Carriage Drafting and Designing.	
B. Miller, Paola, Kan.....	288
Miller's Adjustable Horse.	
J. H. Miller, Mansfield, O.....	282
Wanted.	
Frank B. Miller, Enon, O.....	311
The Reindeer Cutter.	
Oberly & Schlichter, Telford, Pa.....	311
Receipt for Removing Paint.	
Swaine & Adeney, London, Eng.....	301
Whip Manufacturers.	
Partner Wanted.....	297
W. E. Work, Sioux City, Iowa.....	310
Sketching and Drawing Instruments.	

Labor Bureau.

SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," free of charge to all carriage mechanics seeking employment, and also to all employers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

"THE HUB," 323 Pearl-street.

Employer's Department.

—WANTED.—A first-class light-carriage trimmer. None but such need apply. Address W. B. Cadwallader & Son, Trenton, N. J.

—WANTED.—A smith on fine light work and repairing; must be competent to do the finest work, and be sober and reliable; married man preferred. Steady job, good wages, prompt pay, and healthy town. Address E. T. C., East Bloomfield Station, Ontario, Co., N. Y.

Workmen's Department.

—WANTED.—A situation by a carriage trimmer; a steady job. Address Post-master, Shippensburg, Cumberland Co., Pa.

—WANTED.—A situation by a competent carriage blacksmith; can furnish references. Geo. H. Fisher, Kutztown, Berks Co., Pa.

—Situation wanted by a coach painter. Good finisher; can give good reference. Would like to go South. Address Box 191, Abington, Mass.

—WANTED.—Situation as traveling salesman to handle carriage hardware and trimmings. Address D. W. Tillinghast, 404 Lake-st., Elmira, N. Y.

—WANTED.—A situation as foreman in a blacksmith shop. Has had a long experience on all kinds of iron-work pertaining to carriages, especially on heavy work. Can give best of reference. Address D. B., *Hub* office. P. O. Box 3039.

DURHAM & WOOSTER,
NEW-HAVEN, CONN.,
 IMPORTERS OF THE CELEBRATED
**ENGLISH CANOPIES.**

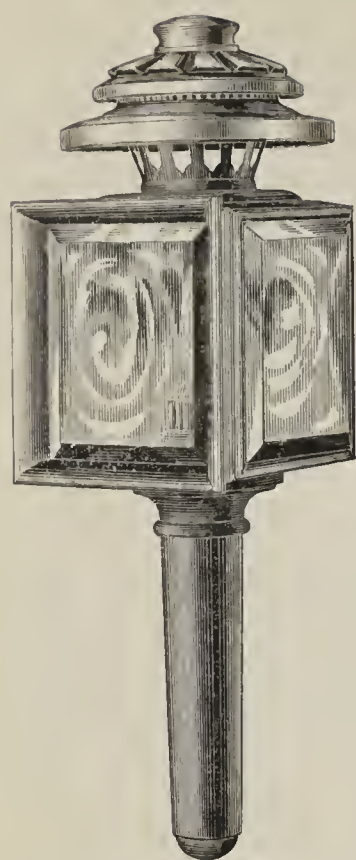
Sole Agents for the United States.

THE KING VARNISH COMPANY
AKRON, OHIO.

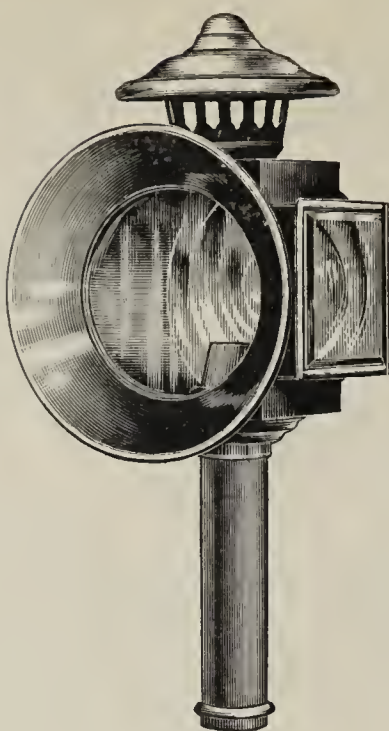
IMPERIAL VARNISHES

JAPANS. DRYERS,
OIL FINISH, &c.

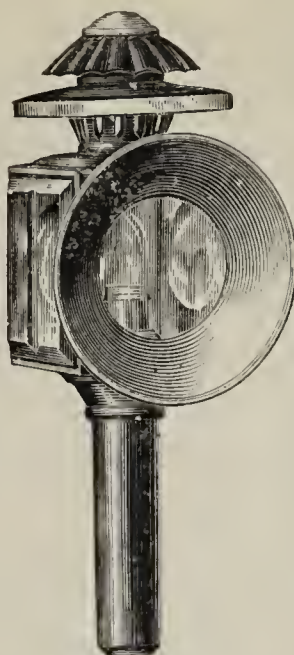
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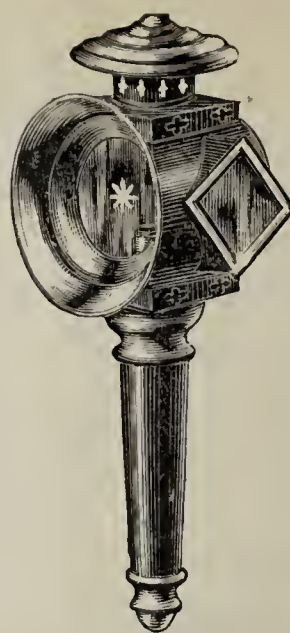
New-York Flange.



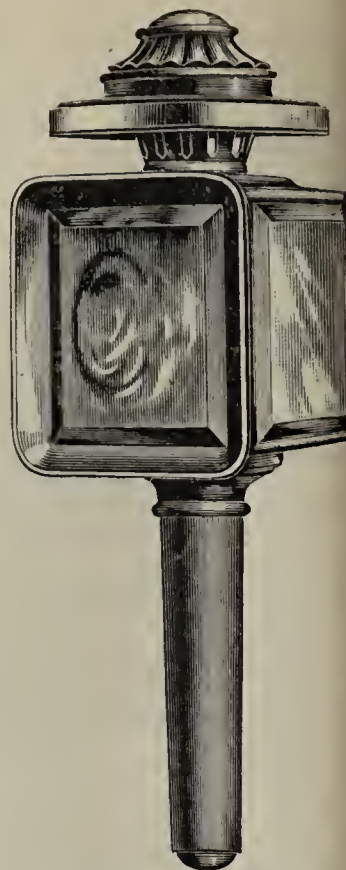
Lancaster.



Village Cart.



New-Haven.



London Flange.

Send for Lamp Catalogue.

C. COWLES & CO.,
NEW-HAVEN, CONN.

JACKSON PAT. PHAETON BODY AND CARRIAGE CO.,

MANUFACTURERS OF

CARRIAGE BODIES

AND

Titus's Pat. Bent Sill Phaeton Body.

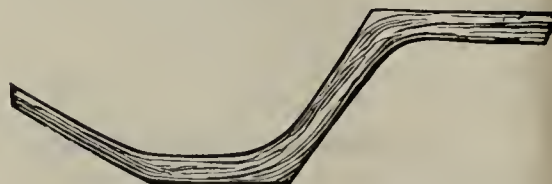
Acknowledged to be the best Phaeton Body ever put on the market.

Send for Descriptive Circular and Price-list.

Jackson. Mich.



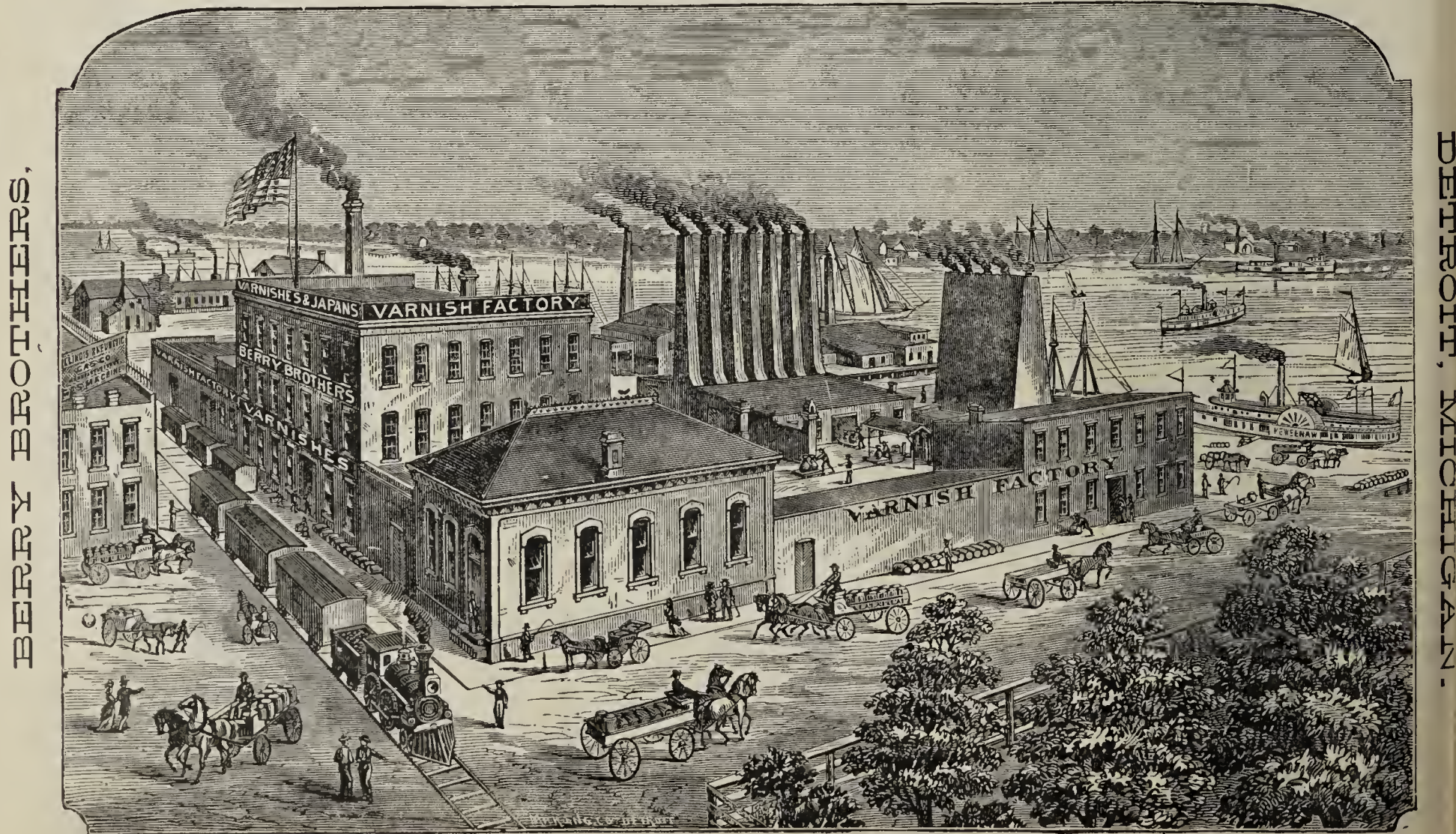
No. 1.



SILL.

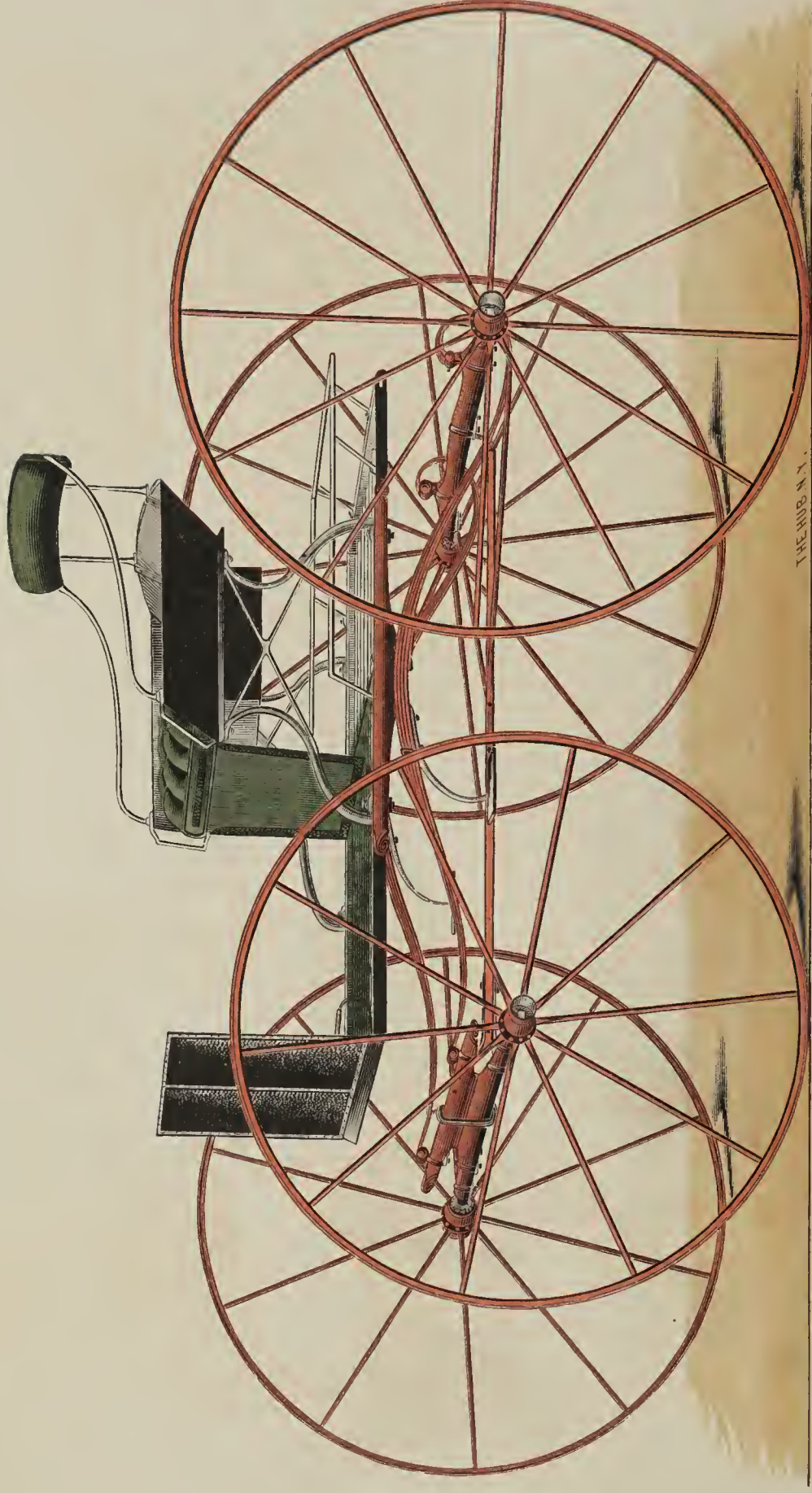
ESTABLISHED 1858.

Coach and Railroad Varnishes



All our Goods are Strictly First-class, and Guaranteed to Give Satisfaction.

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COLORÉD PLATE NO. XLIX. COLUMBUS BUCKBOARD WAGON. SCALE, THREE-QUARTER INCH.

Hung on the Longstreth & Ayer Adjustable Side-bar Spring.

The Hub's

Fashion Plates: Summer Season, 1884.

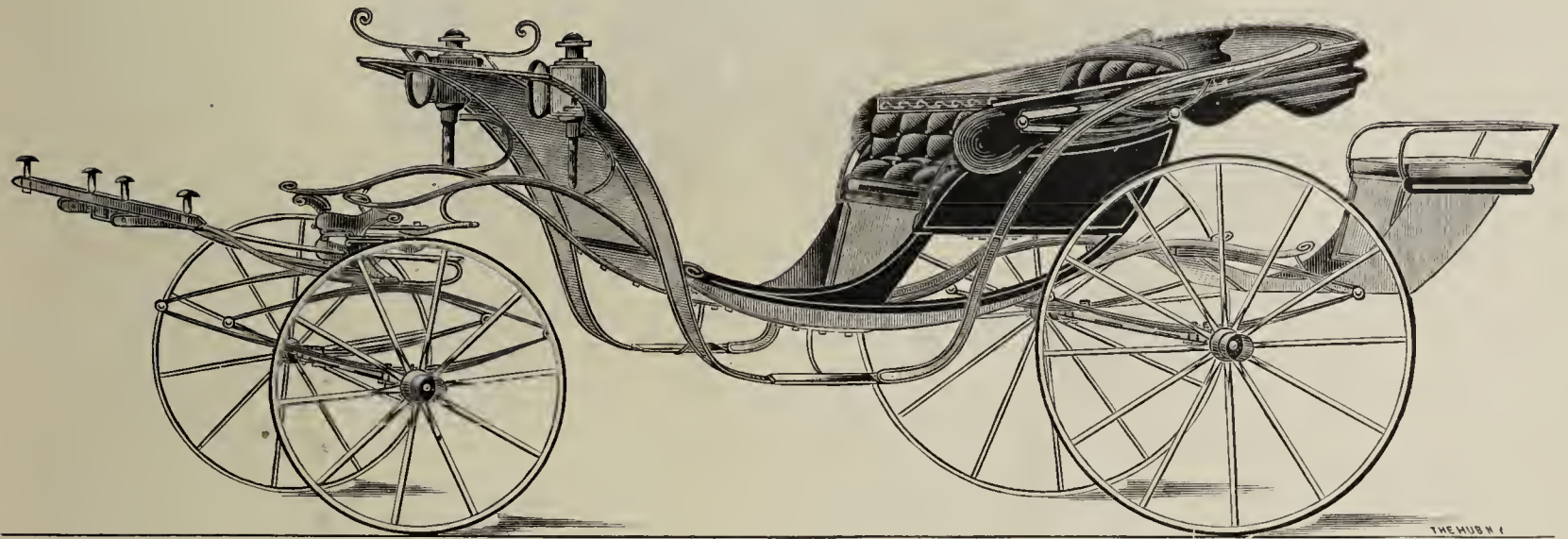


Plate No. 34. LADIES' DRIVING PHAETON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 323.

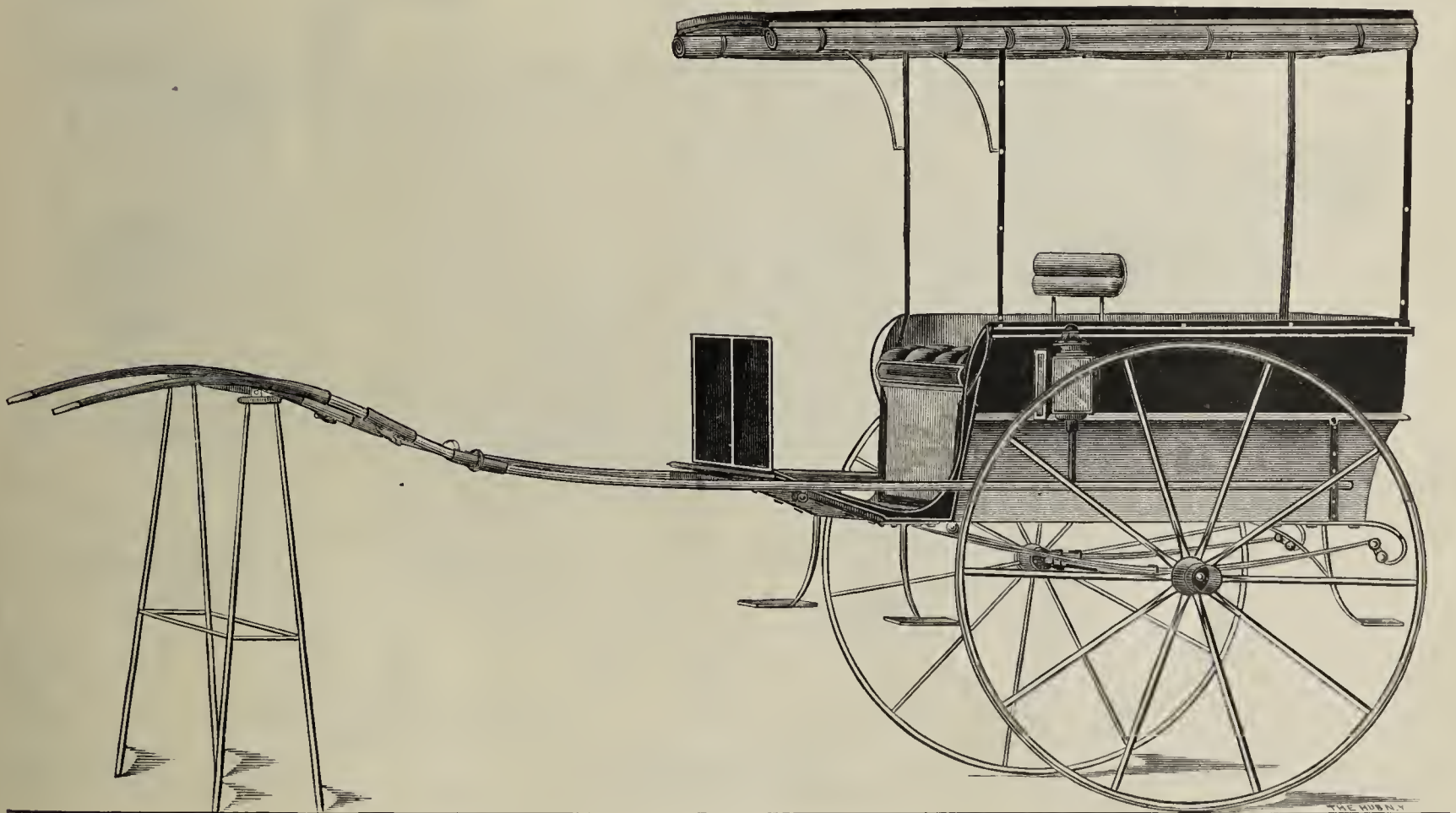


Plate No. 35. PARCEL CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 323.

1903

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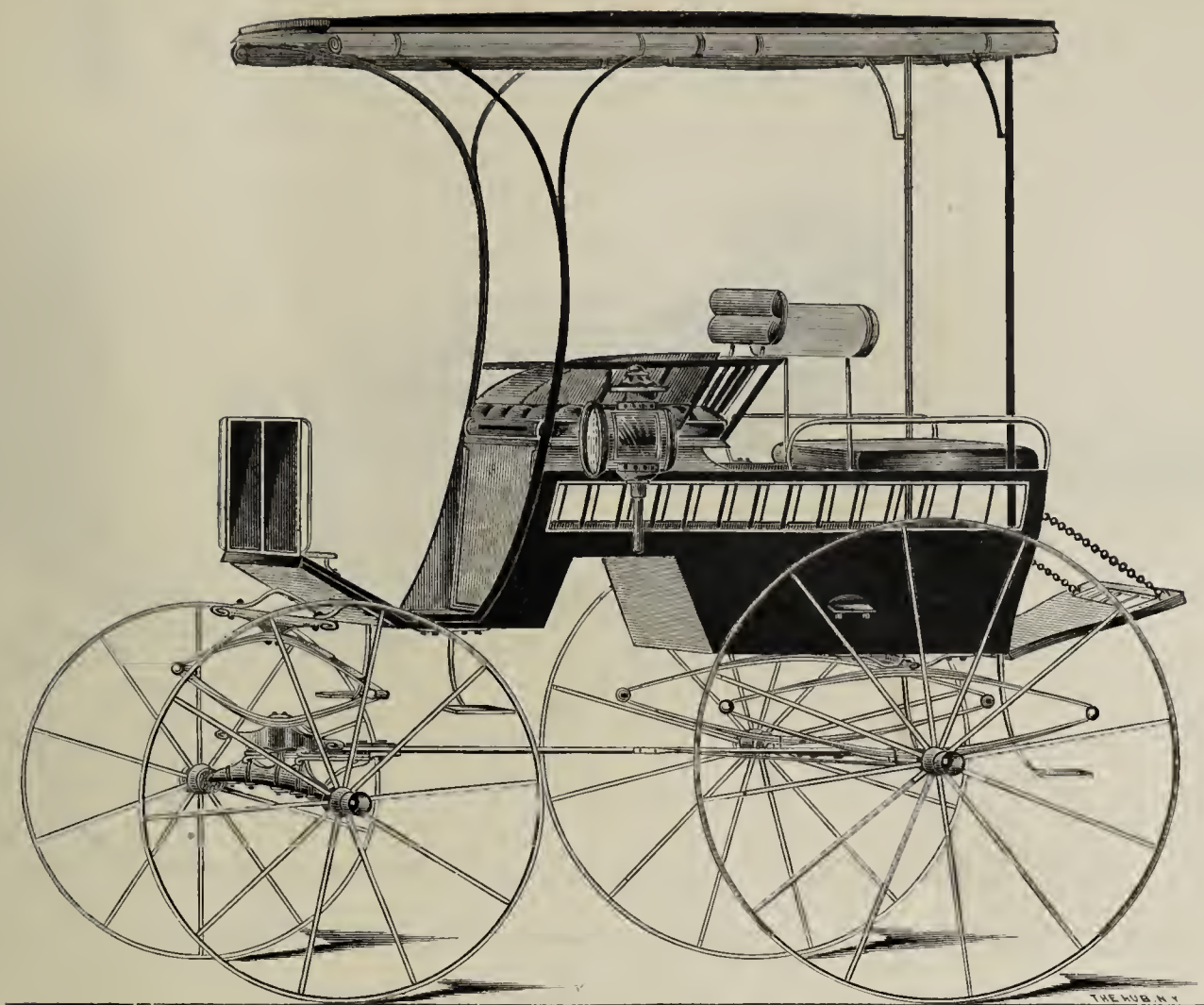


Plate No. 36. CANOPY-TOP DRIVING PHAETON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 324.



Plate No. 37. PHILADELPHIA FOUR-IN-HAND COACH.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 324.



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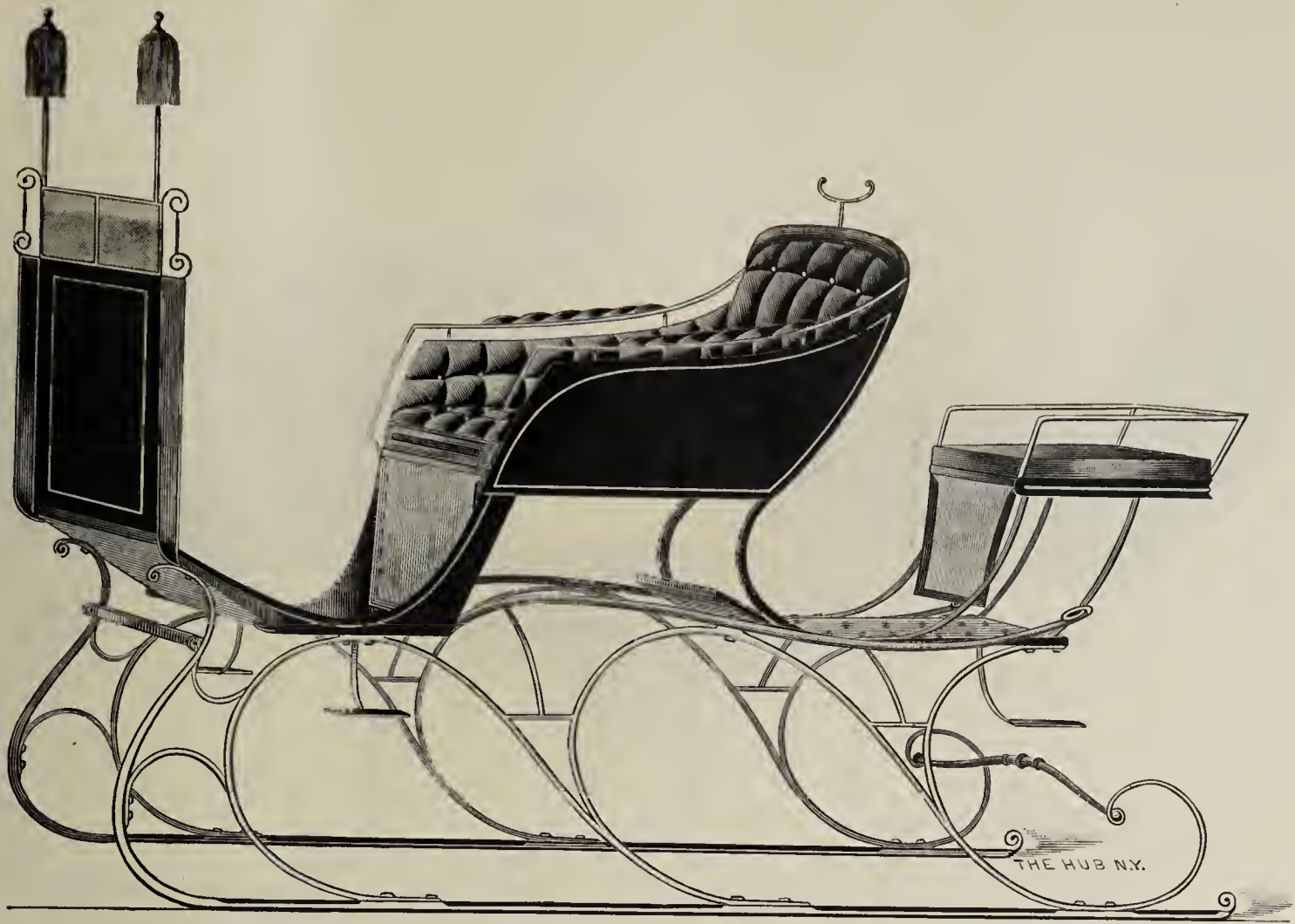


Plate No. 38. SPIDER-PHAETON SLEIGH.—Scale, three-quarter inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 325.

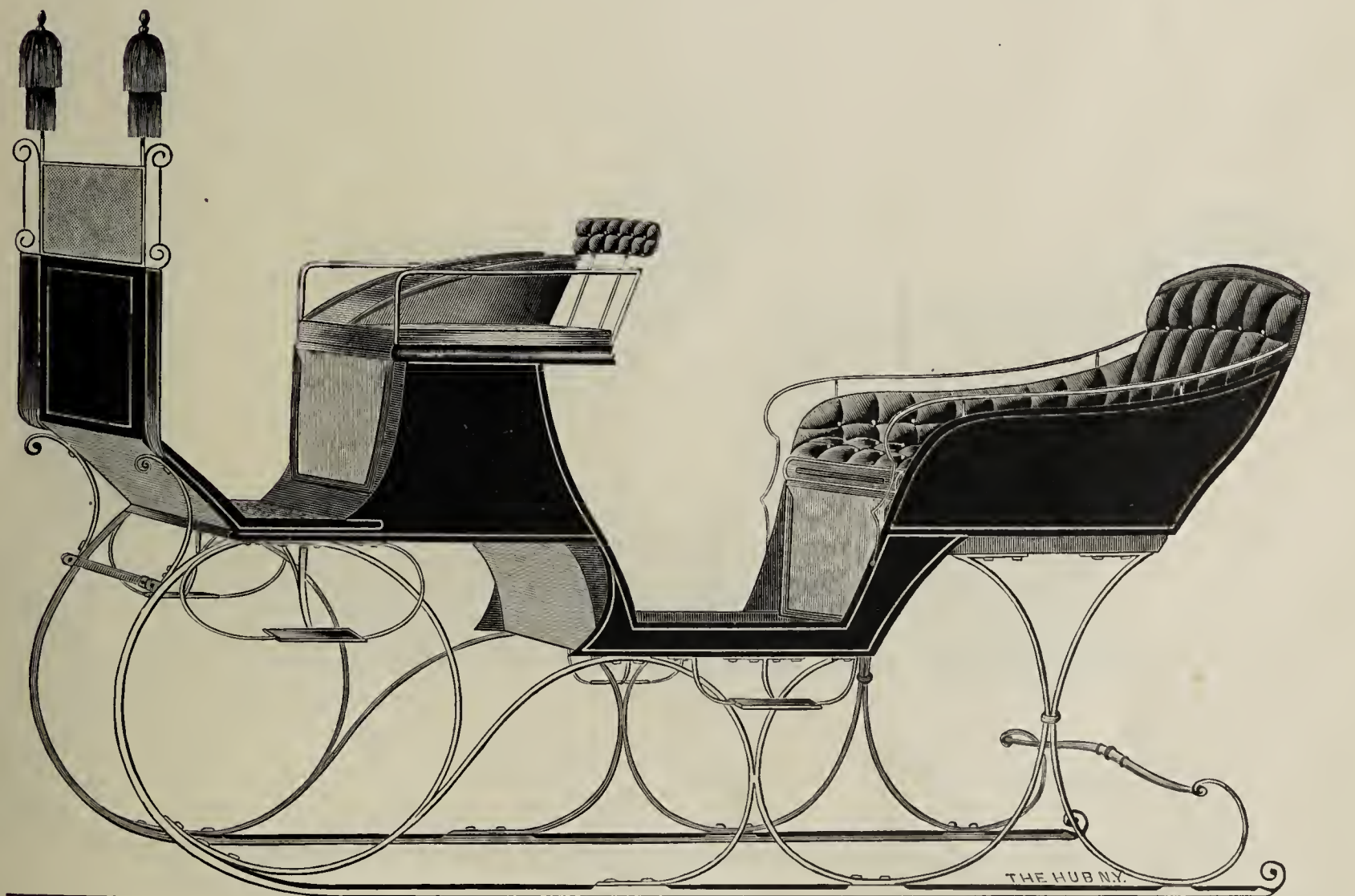


Plate No. 39. CABRIOLET SLEIGH, WITHOUT DOORS.—Scale, three-quarter inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 325.



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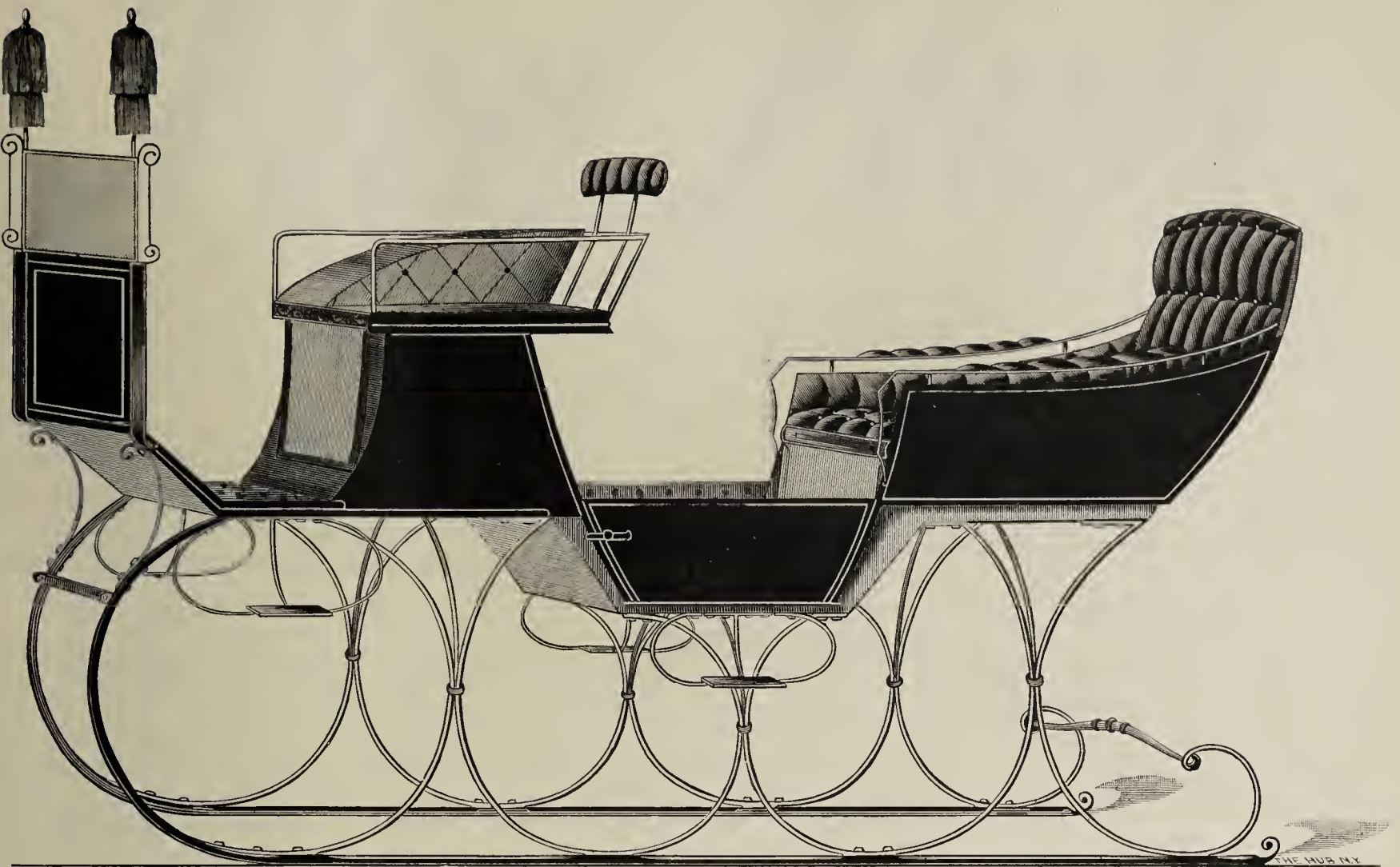


Plate No. 40. CABRIOLET SLEIGH, WITH DOORS.—Scale, three-quarter inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 325

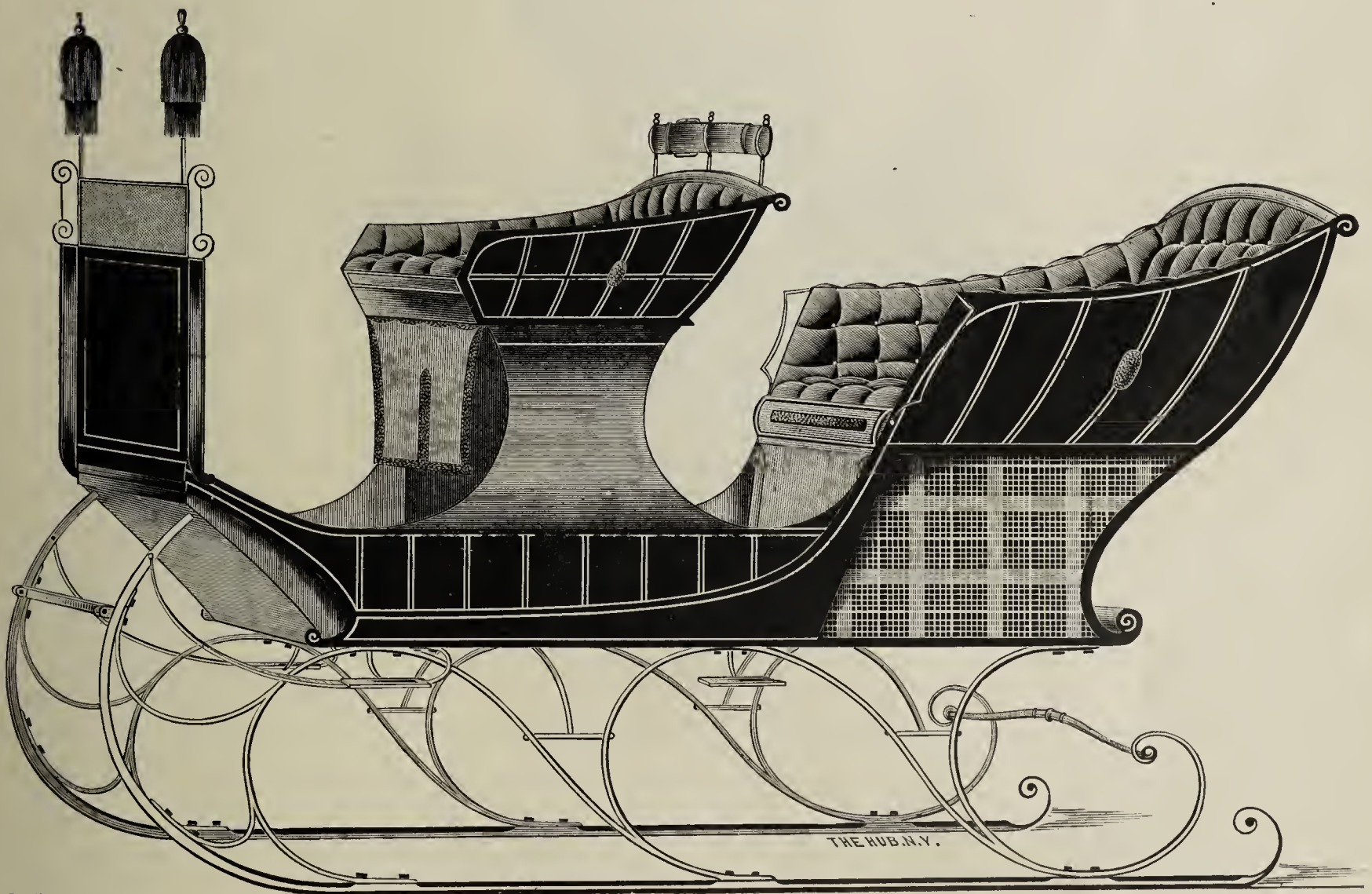
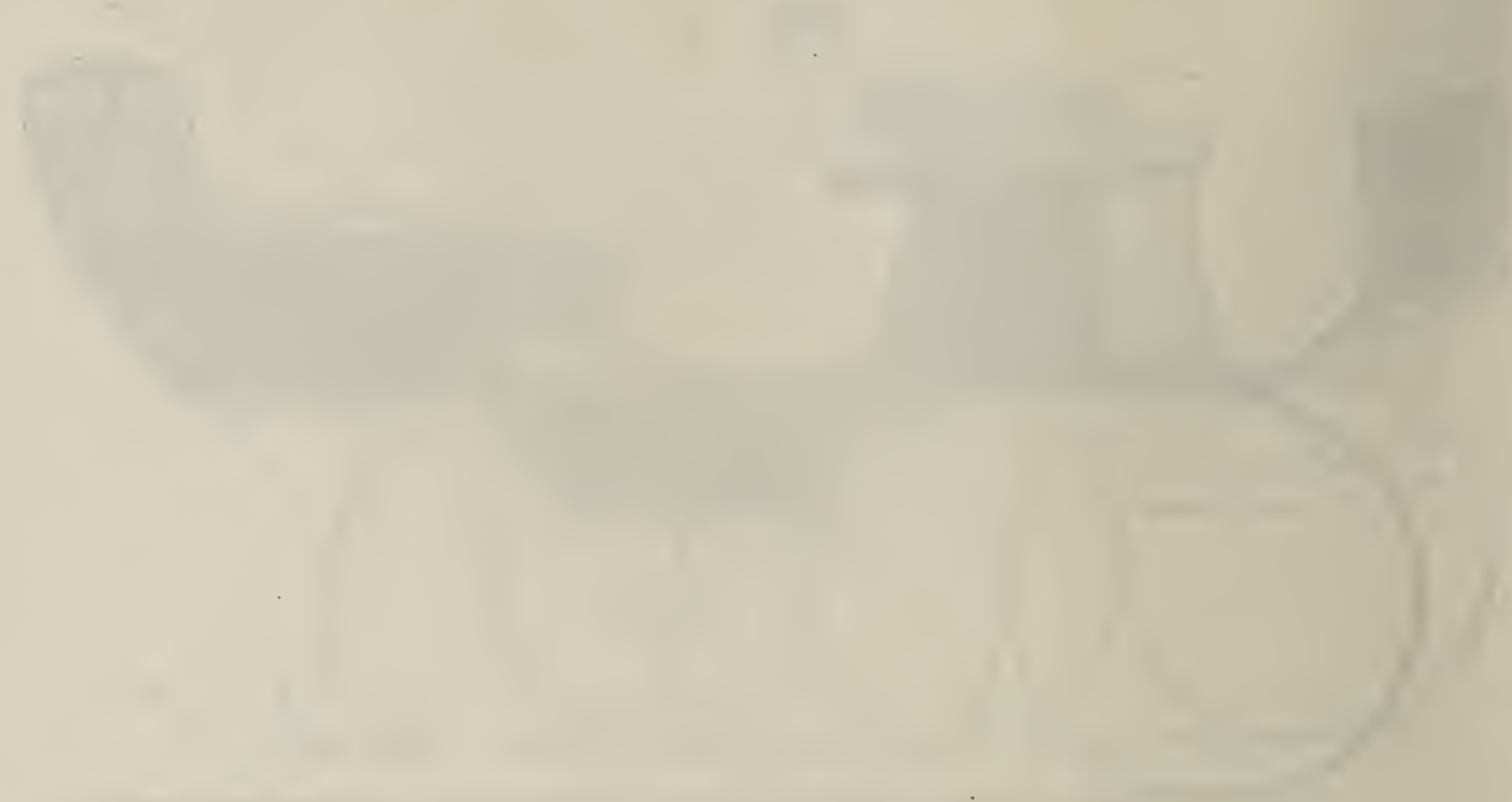


Plate No. 41. COPENHAGEN SLEIGH.—Scale, three-quarter inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 326.



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UNITED STATES DEPARTMENT OF THE INTERIOR



The Hub

"Boston State-house is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, AUGUST 1, 1884.

No. 5.

THE HUB'S PORTRAIT GALLERY.

OBITUARY: BURRITT MANVILLE, OF NEW-HAVEN.

(See Portrait accompanying.)

"DIED SUDDENLY, of heart disease, on Saturday, March 22d, Burritt Manville, aged 69 years, senior partner of B. Manville & Co., carriage-builders, of New-Haven, Conn."—*The Hub*, April, 1884.

THE death of so prominent and estimable a member of the carriage trade as the late Burritt Manville, of New-Haven, deserves more than passing notice; and our only reason for deferring this notice has been our desire to present, in connection with it, a suitable transcript of his friendly features, so long familiar to his associates in the trade.

Burritt Manville was born in Middlebury, Conn., on April 1st, 1814. After receiving a common-school education, he learned the trade of a cooper; and, while still a young man, started a cooper's shop in his own name, carrying it on successfully for many years, and finding a ready market for his product among the West Indies traders and shippers located in New-Haven.

In 1856 he relinquished this business and removed to New-Haven, where he obtained employment in a carriage factory, and worked at that trade until 1859, at which time he associated with him, as partners, Mr. Charles Bradley and Mr. John Kay, under the firm name of Manville, Bradley & Kay, and established a new carriage shop on Water-street. After a short period, he purchased the interests of both his partners, and conducted the business alone, in his own name. The business was successful, and rapidly increased, and it was not long before it outgrew the facilities of the Water-street factory; and in 1865 he removed to larger quarters at the corner of Wooster and Wallace-street, where he associated with him Mr. Hugh Galbraith, under the firm name of B. Manville & Co., which connection expired by limitation on January 1st, 1872, at which time, though without change of title, a new copartnership was formed, consisting of B. Manville, Miles A. Goodrich (who was foreman of the body-shop), and the senior's two sons, Henry L. Manville and Joseph B. Manville. In January, 1875, Mr. Goodrich died, but the business has been continued without change of

title until the present time, when it is still conducted by the remaining partners, Messrs. Henry L. and Joseph B. Manville. Such, in brief, is the history of the old and honored house of which he was the founder.

The specialties of his business included the medium and heavier classes of carriages, such as rockaways, victorias, cabriolets, coupés, broughams, landaulets, landaus and coaches, all of high grade; and his working force ranged from 65 to 100 men. The greater part of his product was usually disposed of through other builders and dealers, and his receipts from one house—namely, that of Wm. H.

Bradley, of New-Haven—are said to have aggregated \$45,000 in a single year. Being widely distributed, his trade was less subject to the fluctuations of the market than is common with carriage-builders; and, with comparatively few exceptions, he seems to have been followed by uniform success in his undertakings.

Mr. Manville was a self-made man, a thorough mechanic, and one who acted on the maxim that whatever is worth doing at all, is worth doing just as well as one can. He was characterized by energy and enterprise, and the heartiness with which he lent a helping hand to his employes and younger men in the business, won him many lifelong friends, the spirit of whose goodwill is well expressed in the following resolutions, adopted by his employes just after his decease:

WHEREAS, We are called upon to mourn the sad death of our late employer, Burritt Manville, who has been so suddenly called from our midst; therefore be it

Resolved, That we, the employes, have lost a valuable chieftain, whom we all loved and respected, and one who, in the progressive developments of the carriage trade, has stood at all times in the front rank;

Resolved, That, by his strict integ-

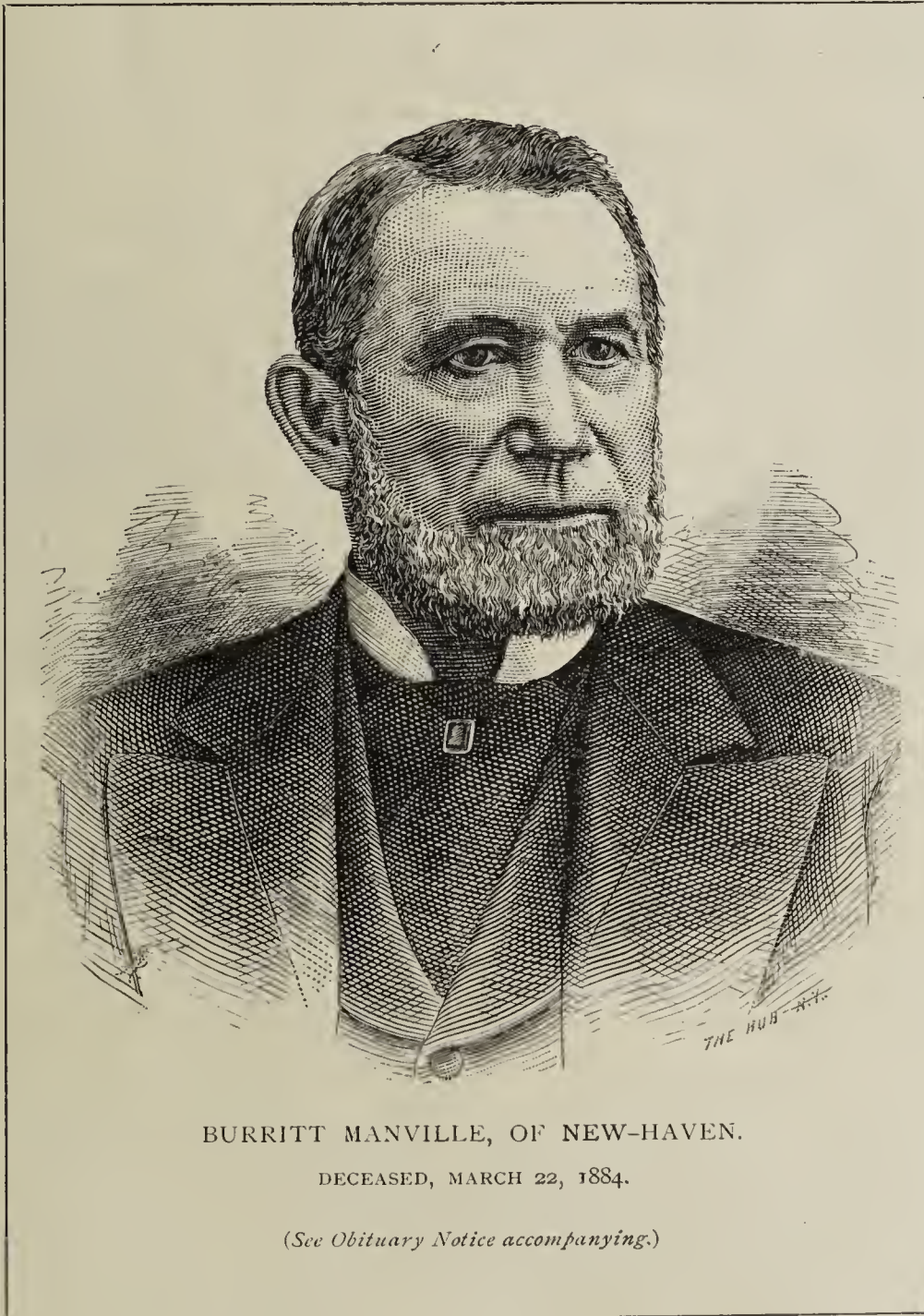
riety, he has greatly endeared himself to all of us with whom he has been connected in our daily work;

Resolved, That the employes attend his funeral in a body; and

Resolved, That expressions of the deepest sympathy are due and are hereby tendered to the family of the deceased, for their irreparable loss following their late affliction, and that a copy of these resolutions be engrossed and sent to the press for publication.

NEW-HAVEN, March 24, 1884.

As intimated in the above resolutions, the death of Mr. Manville was sudden and entirely unexpected. He was in his usual health



BURRITT MANVILLE, OF NEW-HAVEN.

DECEASED, MARCH 22, 1884.

(See Obituary Notice accompanying.)

(Signed) { THEODORE THOMPSON,
FRED. F. MCCULLY,
JOHN HARTY.

during the day, had taken a drive with his wife, and, after spending the evening at home in company with his family, had retired at his usual hour. About two o'clock in the morning his heavy breathing, suggestive of apoplexy, attracted the attention of members of his family, and he died soon afterward, and without previously recovering consciousness.

Mr. Manville enrolled his name, on Nov. 19th, 1872, as one of the founders of the Carriage-Builders' National Association, and was prominent as an active member up to the time of his death.



THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Elysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.

DESCRIPTION OF BIBBS' THIRD-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

[Designed by Mr. Albert Edward Bibbs (aged twenty years), of No. 19 Britannia Square, Worcester, Eng.]

(See Illustrations on Loose Sheet accompanying this number.)

THIS design of Phaeton has an advantage over many so-called Physicians' Phaetons or Buggies, inasmuch as it fulfills at the same time the purpose of a Doctors' Phaeton, and also that of an aristocratic Driving Phaeton. By the simple removal of the medicine box from off the dash, it can at once rank itself with the most fashionable turnouts in the parks, without carrying with it the impression of being a vehicle devoted to the interests of business, which latter somewhat detracts from the character of many Doctors' Phaetons, when seen in proximity to those intended for purely pleasure purposes.

In this design the body is carried upon cranes of steel, which give a lighter and more graceful appearance than do solid box bodies. The rumble is carried on skeleton stays, of a new design, also constructed of steel. The footboard of the rumble is bent so as to follow in part the lines of the cranes, and it is secured on the bottomside by iron plates. It carries on the under side a gridiron step, with a **F** flap. A cross-bar serves to carry the footboard, and is bolted to cranes with countersunk bolts.

The body is constructed with a concave hind panel, the moldings being rounded, with a beading on the inner side. The edges of the footboard

and brackets are beaded or carved. On the bottomside of the footboard and well of the body an iron plate is screwed on, extending to the end of the framework. Pillar handles are attached to the body, for convenience of access. The dash frame is made to extend beyond the footboard, the lower part of which forms wings alongside the footboard.

The body is mounted on a neat fore-carriage of simple construction. Two top beds of ash, plated with steel, with bearings on the wheel-plate, give a good support to the body. A lower bed, with nunters framed across (to the front ends of which futchel irons are bolted on the under-side), and a horn-bar, framed into top beds, with an iron plate bolted in center, complete the gear. A step, with gridiron tread, is bolted on the underside of the springs. The body is fitted with a four-stick head.

DIMENSIONS.

Body.—Width across pillars at top, 44½ in.; across back of body at top, 40 in.; across body at bottom (behind pillar), 30½ in.; and width across footboard, 32 in.

Wheels.—Hind wheels, 47 in. Spokes, 14; width at shoulder, 1⅝ in.; and on face, 1 in. Tire, 1⅜ × ½ in. Front wheels, 34 in. Spokes, 12; width at shoulder, 1⅝ in.; and on face, 1 in. Tire, 1⅜ × ½ in. Track of wheels, 4 ft. 2½ in.

Springs.—Hind springs, 37 in. long to center of eye-bolts, 4 plates, steel, 1½ in. Front springs, 35 in. long to center of eye-bolts, 4 plates, steel, 1½ in.

Axles.—Front axle, 1¼ in.; length over collars, 41 in.; and over flap, 35 in. Hind axle, 1¼ in.; length over collars, 41 in.; and over flap, 35 in.

FINISH.

Painting.—Body, a dark green, and the moldings black, with no relief line. Underparts, green, to match body, and picked out with a single ⅜ in. line of black. For choice, I would prefer the whole of the body and underparts to be painted black, the moldings on the body being relieved with an inner line of umber brown (slightly warmed with sienna), and an outer fine-line of orange, on edge of brown; and the underparts and wheels being relieved with a ⅜ in. line of brown, of same tone as on moldings, with fine-lines of orange, ⅝ in. apart. This will be found to give a very smart effect.

Lining.—Dull-grain morocco (green or brown, to correspond with painting), quilted in diamond fashion. As little lace as possible is preferable, the cushions being piped with morocco, the same as lining.

The driving box has the front stuffed, and trimmed and piped with morocco to imitate the front of a cushion. The back squab should be stuffed full. A cross-bar being fixed along the back of the body, coil springs can be attached, which will add materially to the comfort of the occupants.

The seat-fall is of cloth, with a raised border running around the bottom and sides.

The rumble seat is fitted with a cushion made on a frame of wood. The top is covered with strong canvas, lightly stuffed, and the outer covering of cloth to correspond with the rest of the lining, and piped with patent leather.

No floorcloth whatever is used. The front and hind footboards are painted black and flatted down, and India-rubber mats supply the place of a floorcloth, giving a neater and cleaner appearance.

Finishing.—A brass beading is applied to the body and hind seat, and on the valance of the head. The lamps have brass beads alongside the glasses, and brass beading around the head of the lamps and at the top and bottom of the socket-irons.

A medicine chest is attached to the dash by a hook, and secured through the iron with two turn-button screws. The chest is divided into two compartments, the top being made to lift upward, and the lower part, fitted with a lock, to fall downward. This chest is painted black outside, and the interior is lined with cloth.

The dash frame in drawing (Fig. 2) is shown uncovered, in order not to intercept the view of the inside, and the wing frames are likewise shown uncovered.

ALBERT EDWARD BIBBS.

19 BRITANNIA SQUARE, WORCESTER, ENG.

DESCRIPTIONS OF FASHION PLATES.

COLUMBUS BUCKBOARD WAGON.

(See Colored Plate No. XLIX.)

BUCKBOARD WAGONS have long been an established and typical American vehicle, and, within the last few years, some of the improved patterns have become popular. They are constructed after various designs and in different sizes. The majority are intended for two persons only, but some are now made to carry one, four and even six persons. A great variety of modes of suspension are applied, the majority of which are patented, as is the case with the one represented in our drawing. The

Longstreth & Ayer Mfg. Co., of Columbus, O., are the builders and patentees of this style, the characteristics of which may be briefly described as follows :

The body consists of a frame, filled in with a number of slats, which are mortised into the cross-bars. Four uprights, made of iron, support the seat. At the sill the uprights form an angle for the reception of a bolt, and this bolt secures the stays to the bottom sill. Another angle is formed by these uprights at the bottom of the seat-frame, intended also for the passage of a bolt. The body, as will be seen in the drawing, is hung on side-springs, and two iron bars extend across the bottom of the body to the bottom of the spring-bars, and are secured there by a bolt. The springs are fastened to the top of a bolster in front by a clip. The back end of the spring terminates in a C-curve, and is also secured by a clip on top of the hind axle-bed. The perch in front is connected to the front gear by two iron plates. The bottom plate is on a line with the perch, and goes to the bottom of the axle-bed, taking the king-bolt ; while the top plate is swept upward, and welded to the bottom plate of the bolster. The back of the perch is attached to the hind axle by a plate terminating in a clip, which is fitted over the axle-bed. Each step, as will be seen by the drawing, is secured to the bottom of the spring by a clip and a bolt, the latter going through the spring-bar. The Buckboard Wagon being specially adapted to travel over rough roads, should be built strongly throughout to fulfill the requirements.

Dimensions.—Width of body at the slat bottom, 25 in.; ditto top of seat, 18 in., and ditto bottom, 16 in. Height of wheels (Sarven patent) : front, 45 in., and hind, 49 in., without the tire. Tire, $1 \times \frac{1}{4}$ in., steel.

The side-springs are 54 in. long, from center to center of bolts, with 7 in. set over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, five, namely : the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on top, $4\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axles, 1 in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, black ; and gearing, vermilion, with a narrow stripe and two fine lines of black at a distance. Trimming, green leather, and plain green carpet. Mountings, silver.

LADIES' DRIVING PHAETON.

(See Fashion Plate No. 34.)

LADIES' PHAETONS of various designs are at present the most popular conveyances on wheels, and there is no other class of vehicles which has developed so many variations in outline, weight, mode of suspension, and general finish. The accompanying attractive design was kindly furnished by Mr. John Brill, foreman of the body-shop of Messrs. Henry Hale & Co., of New-Haven, for which he will please accept our thanks.

Several slight alterations from prevailing styles are shown, which, however, do not change the general appearance of the vehicle. The bottomsides are made of bent wood, a method now in vogue in nearly all the leading shops in New-York and New-Haven. These bottomsides are very light, and made of the best white ash. Bent arm-rails and wings are not favored so much at the present time, although several leading firms have tried the experiment. The general objection urged against them seems to be the wide piece of timber required, about 6 in., but this could be partly overcome when contracting and inclining the combined wing and arm-rail, as the width could then be reduced considerably. One of our friends, a foreman body-maker in New-Haven, states that one ought to be able to make a piece $2\frac{1}{2}$ in. wide fill requirements. This assertion seems to us a rather bold one unless the body has but little swell. The greater amount of labor required in dressing and laying off a combined wing and arm-piece, when inclined and contracted, increases the difficulty of arriving at a better result, as compared with the practice of making them of two pieces, especially as the joint is very short where the wing and arm-rail connect. The rocker runs up to where the body-loop leaves the bottomside. No solid sides are used for this job. The sides consist of frame-work, and thin panels are used, and put into a groove as usual. The hind body-loops on a job having a rumble are made heavier, as the attachment of a rumble of course adds considerably more weight to be carried. A lap is welded to the inside of the body-loops at the proper places, and the stays carrying the rumble are bolted to it. The rumble is made of frame-work, and paneled over, as the drawing shows. The front carriage-part has only a half fifth-wheel. An iron cross-stay is bolted on top of the fifth-wheel, and to the crane-iron. A puncheon is framed also into the top bed, and bolted on top of this bar. This puncheon is of iron, and made very light. The construction of the lower front carriage-part is the same as is usual for this class of vehicles.

Dimensions.—Width of body at the middle-pillar on top of the arm-rail, 46 in.; ditto at the back, 40 in.; and at the front, 32 in. Turn-under, $5\frac{1}{2}$ in. Rocker-plates, $2 \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Height of wheels : front, 2 ft. 6 in.; and hind, 3 ft. 3 in.,

without the tire. Depth of rims, $1\frac{5}{16}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{5}{16}$ in. Hubs, front, $4\frac{3}{8}$ in., and hind, $4\frac{5}{8}$ in. Size of front bands for the front hubs, 3 in., and back bands, $3\frac{5}{8}$ in. Size of front bands for the hind hubs, $3\frac{1}{8}$ in., and back, $3\frac{3}{4}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front springs are elliptic, 33 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, three, namely : the first two No. 3, and the last No. 4 steel. Holes apart on top half, 3 in. Size of holes, $\frac{5}{16}$ in. The hind springs are not full elliptic. The front of the lower section of the spring is bolted to a loop, welded to the body-loops, and is 34 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely : the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top section, 3 in. Size of holes, $\frac{5}{16}$ in. Axles (Collinge patent) : front, 1 in., and hind, $1\frac{1}{8}$ in. Track, front, 3 ft. 10 in., and hind, 4 ft. 6 in., from out to out.

Finish.—Painting of body-panels, dark green ; and moldings, black, striped with a fine line of light green. Gearing, green, a shade lighter than the body, with a medium stripe of black, and two medium lines of light green at a distance. Trimming, green goatskin for the back and cushion top, and green cloth for the quarters and head-lining. Green cloth is also used for trimming the rumble. The back and the cushion tops are laid out in large squares. A full back is required for this job. Carpet, green, with black figures. Mountings, silver.

PARCEL CART.

(See Fashion Plate No. 35.)

LIGHT CARTS adapted for the delivery of small parcels are now seen in considerable numbers on the streets of this city, and many of the newer ones are of good style and very attractively painted. The specimen represented in our drawing is very light, and only suitable for the delivery of small packages. This same cart may also be turned into a pleasure vehicle by placing another seat at the back, in which case the front seat and lazy-back should be made of two halves in order to allow easy entrance to the hind seat. If it is preferred to sit sidewise, the seats can readily be constructed to suit that arrangement ; but as the width of the body will not permit of placing the seats opposite, they will have to be so arranged as to pass each other, and this method will not allow of seating more than two persons, though if intended only for children, the width of the body is then sufficient for the wagonet method of seating.

A door is made in the rear of the body for entrance, and this door is also utilized for placing and removing parcels. The sides are concaved to harmonize with the back. The hind corner-pillar should be strengthened by a plate at the concaved section. The Stanhope-pillar at the front can be made of hard wood, and is then framed to the sill, and the panels grooved into the pillar ; or it can be made of whitewood, and fitted over the panel. In the latter case, an extra pillar is framed on the inside, and the panels are glued over this pillar. The moldings are glued and nailed to the sides and back.

The top is made to shift. Two bottom frames, each made of two pieces, terminate at the door in the back. The pillars are lapped to this piece, and strengthened by corner-plates. Each frame is secured to the body by three stout thumb-screws. The pillars and top should be made as light as possible. A light rocker-plate is put on the inside of the bottom sill at the toe-board bracket. The irons at the back of the body, intended to regulate the height of the shafts in front, are arranged in such a manner as to be parallel with each other, but as this will bring the iron considerably out at the bottom, the plate connecting this regulator at the bottom of the body will have to be made of a corresponding length, which is determined by the flare of the body.

Dimensions.—Width of body on top, 43 in.; ditto at the center, 40 in.; and at bottom, 37 in., from out to out. Height of wheels, 4 ft. 3 in., without the tire. Depth of rims, $1\frac{3}{8}$ in., full. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $4\frac{1}{4}$ in. diameter. Front bands, $3\frac{1}{4}$ in., and back, $3\frac{3}{4}$ in. diameter. Length of front bands, 2 in. Length of hubs, 7 in. Tire, $1\frac{1}{8} \times \frac{1}{4}$ in., round edge steel.

The springs are 48 in. long, from out to out, with $4\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely : the first three No. 2, and the other two No. 3 steel. Size of axle, $1\frac{1}{4}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the upper panels of the body, dark green ; and moldings and lower panel, black. The moldings are striped with a fine line of vermilion. Gearing, deep English vermilion, with one heavy and two medium stripes of black at a distance. Trimming, green leather for cushions, fall and back. A green carpet should go with this vehicle, to be used with it as a pleasure vehicle, but to be taken out if used for business purposes. Mountings, silver.

CANOPY-TOP DRIVING PHAETON.

(See Fashion Plate No. 36.)

THE vehicles coming under the category of Gentlemen's Driving Phaetons are not produced at present in such numbers as formerly, and this is especially the case with the T-cart or Stanhope Phaeton, which was at one time the leader in that class. On the fashionable drives, T-carts are still frequently seen, but they are little built this season excepting to order.

The vehicle represented in the accompanying Fashion Plate can be utilized in several ways. It makes a fine turnout for pleasure driving, and the hind seat can be arranged to allow the occupants to sit either back to back, as shown on the drawing, or to all face frontward. It may also be used for hunting purposes, and there is sufficient room at the back of the body for placing the dogs. In case it is used for hunting purposes, a division consisting of a half-inch board is placed from the top of the back panel of the wheelhouse to the bottom of the front seat, and made movable. A movable frame with slats is placed at the back end of the body when the tail-gate is lowered. As the occupants will then have to sit back to back, the space between the front and back seats is also covered over. All these extra parts, as before stated, are made movable, and are taken out when used for pleasure driving.

The top is made to shift. The pillars are made of iron, and shouldered off on the top-rail so as to be even with the outside. The hind-pillar is held in place by a loop and a thumb-screw at the top and middle rail. On the front the pillars are shouldered off the same as on the back, and extend to the seat-frame, forming an angle long enough to take a screw-bolt. A lap is welded to the pillar at the top seat-rail, and a thumb-screw is inserted through the laps into the seat-rail. Plates having three holes are let into the wood wherever a thumb-screw is used; a thread being cut into the center hole, while the other two are for the admission of two screws. The top can be easily removed, if necessary, by operating the thumb-screws.

The rockers are made not over $1\frac{3}{8}$ in., but are about 3 in. high. Where possible, a $2 \times \frac{3}{8}$ in. rocker-plate will be sufficient, excepting at the top of the wheel-house, where it should be $\frac{1}{2}$ in. The sides of the body are of a concavo-convex shape, to harmonize with the back. A light pillar is framed level with the front edge of the body, and forms one sweep with the front of the seat. The space between the rocker and this pillar is filled in with whitewood, dressed level and painted. The sticks on the body are V-shaped; and the same style of sticks is employed at the front seat, which is square-cornered. If it is desired to use the hind seat both ways, as before mentioned, an extra step is placed on the body to permit more convenient entrance.

Dimensions.—Width of body on top, 35 in., and at bottom, 31 in. Width of seat at top, 40 in., and at bottom, $35\frac{3}{4}$ in. Rocker-plates, $2 \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Height of front wheels, 3 ft. 4 in., and hind, 4 ft., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. The hubs are $4\frac{3}{8}$ in. diameter. Front bands, 3 in., and back, $3\frac{5}{8}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front spring is elliptic, 36 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind spring is elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first two No. 2, the next one No. 3, and the last one No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axles, 1 in., steel. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, black; and gearing, dark green, with a medium stripe of black, and two medium lines of carmine at a distance. Trimming, green goatskin for cushions and fall, and green cloth for the head-lining. Carpet, plain green. Mountings, silver.

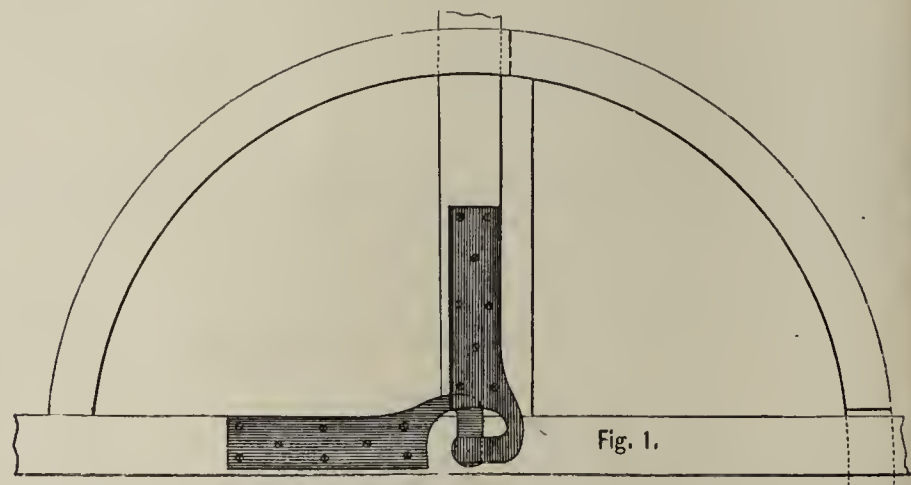
PHILADELPHIA FOUR-IN-HAND COACH.

(See Fashion Plate No. 37.)

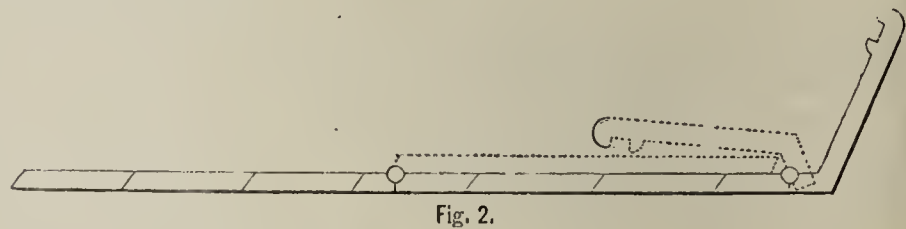
THE MAIL COACH, or "Tally Ho," as it is sometimes called, after Col. Kane's popular vehicle, is now fairly domesticated in America. The first coaches used here were imported from England, and later from France, but it was not long after the appearance of the first imported coaches that several leading carriage manufacturers in this country began building them to order; and to-day American-built Mail Coaches are quite equal, if not superior, to those of foreign make.

The Coach represented in this number was recently completed by Messrs. D. M. Lane's Sons, of Philadelphia, and is the second one built by that firm. The first they made was for a gentleman in North Carolina, which showed several departures from the "regulation pattern," the body having a wheel-house for the wheels to turn under, and windows

being placed in the front and rear upper quarters, provided with Venetian blinds; while the body was hung on a coach gearing, having two elliptic springs in front, and platform springs behind. The Coach illustrated in the accompanying Fashion Plate was built to the order of Mr. E. Rittenhouse Miller, of White Oak Farm, Germantown, Philadelphia. In outward appearance, it does not differ from the regular Mail Coach, but it is very light, and has capacity for carrying thirteen persons comfortably, all on top of the Coach. Several noteworthy changes have been made in its construction, as compared with others of similar pattern, but these do not so much affect its outward appearance as its interior arrangements. The most noticeable variation is in the doors, which do not extend to the bottom of the top-rail, but are made of two halves, the upper part being stationary, and the panel, forming an imitation of a stable shutter, being glued into the pillars and fastened into the pillars first, when both pillars are afterward inserted in the body at one time. This arrangement allows of making the standing and doo.-pillars very light, no glass-frames being necessary. The making of the door in two halves will not permit of placing seats in the interior of the Coach, and the interior of the body is therefore utilized merely for storage purposes. Arrangements are also made so that, when on a pleasure expedition, a continuous table may be formed from front to back, which is still further lengthened by gates at the front and back boot-panels, which, when turned down, are on a level with the bottom of the body. This is accomplished by concealed hinges, made similar to those used for the front lid of a Brett. For a better illustration of this novel feature, we introduce the accompanying detail view. See Fig. 1.



It will be observed in this Coach that the two seats on top of the body face one way, which is another noteworthy change from the usual mode of construction. To effect easy entrance to the rear seat, the top is left entirely open, the bottom for the rear seat of the body coming on a line with the front and back boots. The back seat is divided at the middle, and one part is raised to admit passage to the back seat. The lazy-backs are supported by four uprights, provided with knuckle joints, which permit the backs to be turned down when not in use. The lazy-back for the back seat is made of two parts, and is turned up when the seat-board is raised.



No rocker-plates are used on this Coach, and they are not deemed necessary, in view of the peculiar construction of the upper part of the body. A heavy panel is inserted at the upper part of the door, between the two standing-pillars, and by lowering the roof or top to a level with the top of the front boot, additional frame-work is required, which, it is claimed, gives the body sufficient stiffness and strength without the use of rocker-plates. This vehicle, after being ironed, was put to a severe test, and realized all expectations in this respect.



An iron step-ladder is provided, to assist ladies in mounting to the seats. This ladder is made of three pieces, and, when not in use, can be folded together and suspended by hooks under the hind seat. We introduce three detail cuts to show the construction of this ladder.

Fig. 2 presents a side view of the ladder, showing the full length, and dotted lines indicate the same when folded up. Fig. 3 represents a front view of the same; and Fig. 4 a top view, and the step of the body, combined.

The brake is worked by a lever reaching up to the top of the driver's seat, and is placed on the inside of the boot, in such position that the

working of its different portions will not be interfered with by packages or articles placed in the boot. As a further means of arresting the speed of the vehicle when going down hill, an iron shoe is provided, attached to a chain by a hook, to be placed in front of the hind wheel.

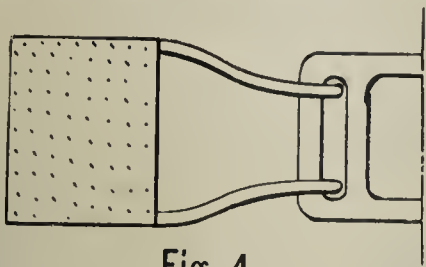


Fig. 4.

The Coach is further provided with a basket for the storage of umbrellas and canes, and the indispensable coach horn, fastened to the rear seat, and inclosed in a case made of pigskin. The interior of the body is furnished with the usual appurtenances belonging to such a vehicle.

The running-part consists of front and hind axle-beds, a bolster in front, regular futchels for the reception of the pole, two outside futchels, a perch, and two futchels at the hind axle. Its construction requires considerable skill in laying off and making, especially the hind gearing; and to do it properly, careful working drafts should first be made of both the side elevation and top or bottom view. The futchels for the hind gearing follow the sweep of the perch, and should be carefully pricked off to secure a correct job. The front gearing is provided with a stiff draw-bar and an evener-bar. The evener-bar is for purposes of draught, and is provided as usual with two whiffletrees. The stiff bar is mainly intended for the convenience of passengers in mounting to the driver's seat. The fifth-wheel is 26 inches in diameter, and placed in front of the axle-bed. At the back of the axle-bed a wooden slide is introduced, having an iron plate on top. This slide follows the circle of the fifth-wheel a short distance outside of the inner futchels, and is then swept so that the ends form a concavo-convex sweep with the center part. The extreme ends are finished off with a scroll. A stop is forged on the top plate of the back slide. Mail patent axles are used on this job, and they are let into the axle-beds within $\frac{1}{2}$ inch from the bottom surface.

The full-size working drafts of the body and gearing from which this Coach was built, were prepared by Mr. John G. Hahn, foreman in Messrs. D. M. Lane's Sons' body-shop, and Mr. Hahn also made the calculations for the interior arrangements of the body, etc. The blacksmithing was done by Mr. Robert Lutes, who also deserves credit for the skill with which he performed his part of the task.

Dimensions.—Width of body on top, in center, 50 in.; ditto backs, 44½ in.; ditto dash, 39½ in.; ditto front seat, 43 in.; ditto seats in center, 60 in.; and ditto back, 48 in. Turn-under, 3 in. Height of wheels in front, 3 ft. 5 in.; and hind, 4 ft. 1 in., without tire. Depth of rims, 2 in. Size of spokes, 2 in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{1}{2}$ in. Hubs, front, 7½ in.; and rear, 7¾ in. diameter. Front bands, 5½ in.; and back, 6¼ in. diameter. Length of front bands, 2½ in. Length of hubs, 10 in. Tire, 2 × $\frac{1}{2}$ in. steel, round edge.

The front springs are platform. The side-springs are 27 in. long, from center to center, with 4 in. set over all. Width of steel, 2 in. Number of plates, five, namely: all No. 2, steel. The cross-spring is 45 in. long, from center to center, with 5 in. set over all. Width of steel, 2 in. Number of plates, eight, all No. 2 steel. The hind springs are platform. The length, set, width of steel, and number of plates of the hind springs are like those on the front springs. The springs are clipped to the bolster axle-bed and bars. Axles, 1¾ in., mail patent. Track, 5 ft. 4 in., from out to out.

Finish.—Painting of the body, lower quarters and door-panels, ultramarine blue; upper quarters, boots and moldings, black; upper part of the door, English patent yellow. The rockers and running-gear are painted with English patent yellow, with a broad stripe and two stout lines of black at a distance. Outside trimming, plain throughout. The material for the cushions, backs and falls is pigskin. Instead of a carpet, linoleum is used, lined with light-colored leather. The interior of the body is not trimmed. Mountings, brass.

SPIDER PHAETON SLEIGH.

(See Fashion Plate No. 38.)

As a rule, latterly almost universal, the bodies of the heavier classes of sleighs now follow very closely, in outline and general finish, those of wheeled vehicles; and we think the experiment, here suggested, of adapting the body of a Spider Phaeton to use on runners will prove satisfactory.

The body should not have as much side-swell as if placed on a carriage, but may otherwise be built the same as usual. The upper section of each side is either made of solid whitewood, or of frame-work, and in the latter case a thin panel is used, and put into a groove. If solid sides are used, 2½ in. whitewood will be sufficient. The corner-pillars are made

of bent wood. For the bottomsides bent wood will also be preferable, at least from the back of the middle pillar, and it is then spliced to the front part. A plate is screwed to the inside, and rounded at the outside. The pillar and bottomside, if of bent wood, can be made very light, or considerably lighter than on a carriage, as the iron side-stays give great support. The middle and back corner-pillars are framed into the bottomside. On the middle-pillar, if solid sides are used, the sides are halved to the pillar, and mitered to the back corner-pillar, the same as mentioned in the description of Fashion Plate No. 27, page 252.

The rumble consists of a bottom and top frame combined by four upright stays, which are bolted to the frames. The back of the rumble is supported by the back stays of the running-gear, and the front rests on two stays, forming a T, and bolted to the bottomside. Near the bottomsides of the body a lap is welded to the bottom plate of the bottomsides, and the rumble stay is welded to this lap. The runners are bolted to the toe-board bracket, and further strengthened by two stays welded to the side-stays.

Dimensions.—Width of body on top of the middle-pillar in front, 44 in.; ditto back, on top, 39 in.; and ditto bottom, 30 in. Width of dash, 28½ in. Turn-under, 6½ in. Runners, $\frac{7}{8} \times 1$ in. Shoes, $\frac{7}{8} \times \frac{5}{16}$ in. steel. Side-stays, $\frac{9}{16} \times \frac{11}{16}$ in. oval. Cross-stays, $\frac{1}{2} \times \frac{3}{4}$ in. oval. Track, 39 in., from out to out.

Finish.—Painting of the side and back panels, blue, not too dark; and moldings, black, with a fine line of gold. Running-part, light blue, with two lines of gold. Trimming, blue cloth throughout. Carpet, blue, with yellow figures. Plumes, yellow. Mountings, silver.

CABRIOLET SLEIGH, WITHOUT DOORS.

(See Fashion Plate No. 39.)

THIS design represents one of the latest patterns of fashionable sleighs. Several changes from previous styles are noticeable in the outlines of the body and in the ironwork. The latter is not as elaborate as for several seasons past, but is of graceful design, and in good harmony with the rest. The runners are fastened under the bottom of the body, a method now generally adopted on a great number of the heavier sleighs, thus enabling the shortening of the runners considerably.

The body is similar to that of a Cabriolet, but has an ogee back. The back sweep of the boot is of a peculiar shape, but has a stylish appearance. Solid sides are used for the sides at the hind seat, and the moldings are worked on. The front moldings are even with the back face of the boot, and are left heavy at the bottom, and then lightened off toward the top in a concavo-convex shape, and rounded over on the outside. The bottom in front, under the boot, is straight, thus making less work for the body-maker, and permitting the seat to be raised higher. The toe-board bracket is swept, as is shown in the drawing, and, to make a strong job, is mortised into the rocker. The center rocker and the back boot rocker are not inclined and contracted, but the back upright rocker is inclined, and the back horizontal rocker is contracted and inclined. That portion forming the bottomside from under the hind seat should be made of one piece of whitewood, and is intended to extend up sufficiently to be on a line with the bottom of the boot; and from there, up to the bottom of the driver's-seat, an extra piece is glued on. The joint formed at the hind seat in front, through the bottomside, should be bridged over, thus preventing the joint from showing. An iron stay extends from the front of the runner to the toe-board bracket, acting in the capacity of a finish and support for the toe-board. In the center an iron cross-stay is introduced, to give more stiffness to the running-part. The dash is made of wood, and is fastened to the body by plates.

Dimensions.—Width of body at the middle-pillar, at the arm-rail, 46 in.; ditto at the back, 38 in.; and at the dash, 32 in. Turn-under, 5½ in. Rocker-plates, 2 in., fastened with 1½ in. No. 16 screws. Track, 40 in., from out to out.

Finish.—Painting of panels on the hind seat, dark lake; and moldings and boot panels, black. The moldings are edged with a fine line of carmine at the inner edge. Running-part, deep carmine, with a heavy stripe of black, and two medium lines of gold. Trimming, brown cloth. The back and cushion top are laid out in large biscuits. A broad raiser goes around the fall, and is made of cloth. The trimming for the front seat is plain, with the exception of a raiser on the fall, similar to that on the hind seat. Carpet, dark brown, with red figures. Plumes, red. Mountings, silver.

CABRIOLET SLEIGH, WITH DOORS.

(See Fashion Plate No. 40.)

THE use of light floors in connection with sleigh bodies has been gaining in favor lately, and it will be readily admitted that they not only increase the comfort of passengers, but that the appearance of the sleigh

is improved. These doors are light, and can be made of thick white-wood, or frame-work with a thin panel on the outside. In the former case the swell is worked on the outside, and, after completing the outside, the piece is lightened out on the inside. Two ash pillars are glued on the inside, one in front and the other at the back end of the door, for fastening the hinges and lock. Doors made out of a solid plank are in most cases painted on the inside, while doors made of frame-work are trimmed over. The doors are made in the twist, which is necessitated by the considerable turn-under of the front pillar at the hind seat, and the almost straight sides at the boot.

The molding forming a finish at the boot projects over the sides of the body 1 in. at the top of the door, and is worked gradually to $\frac{5}{16}$ in. thick at the bottom, retaining nearly the same thickness to the top. This molding should be made of hard wood. The sides at the hind seat are made of whitewood; and a thickness of $2\frac{1}{2}$ in. will be required, as they will have to be worked winding. This will leave the sides about 1 in. thick when finished at the ends.

The back corner-pillars are lapped into the rockers, but project 1 in. outside of the rocker. The rocker is gauged off on the inside, and shaved off to nothing toward the back face of the corner-pillar, and the sides are then fitted to it, forming a miter joint. The back panel is put into the groove as usual. The moldings are very wide,—or not less than 2 in.

The hind seat is deep, but not of great height, which gives the seat a very light appearance. The depth of the seat, as shown in this drawing, allows the trimmer to put in a very heavy back. A deep seat is a very desirable feature in a sleigh, as heavier clothing is generally worn when riding in a sleigh than in a wheeled vehicle. The boot, as is the rule with sleighs of this class, is of good size, but not out of proportion with the rest.

The runners are fastened to the bottom of the body at the front, in a manner similar to that illustrated in connection with Plate No. 39. One of the step-shanks of the front step is bolted to the runners, and at the same time secures the runners to the body. The front stay on this sleigh, as well as on No. 39, forms a circle with the runner. The remaining stays differ from all others illustrated in this number. They are plain but tasteful, and of sufficient strength to stand all ordinary strain. Three cross-stays and a cross-bar in front add additional strength to the running-part.

Dimensions.—Width of body at the middle-pillar, on top of the arm-rail, 46 in.; ditto at the back on top, 38 in.; ditto at the tail-bar, 36 in.; ditto at the dash, 32 in.; and on top of the boot, 34 in. Turn-under, $5\frac{1}{2}$ in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Runners, $\frac{7}{8} \times 1\frac{1}{8}$ in. Shoes, $\frac{7}{8} \times \frac{5}{16}$ in. steel. The side-stays are $\frac{5}{8} \times \frac{3}{4}$ in., oval; and the cross-stays, $\frac{5}{8} \times \frac{1}{8}$ in., oval. Track, 40 in., from out to out.

Finish.—Painting of the hind quarter and door panels, dark green; and moldings and boot panels, black. The moldings are edged with a fine line of carmine. Running-part, carmine, with a narrow stripe and two medium lines of black. Trimming, green cloth throughout. The pipe pattern is used for the back, and the cushion top is laid off in squares at the front and back end, and with an oblong square in the center. The trimming for the driver's-seat is plain. Carpet, dark green, with black figures. Plumes, red. Mountings, silver.

COPENHAGEN SLEIGH.

(See Fashion Plate No. 41.)

HERE is a decided novelty in the sleigh line, and one that offers special opportunities for the painter to display his skill. It is chiefly characterized by high sides, peculiar sweeps and elaborate painting. The body between the seats is shortened as much as possible without interfering with the foot room. The hind seat is of considerable depth, which will allow of putting in a full back. The front seat is raised considerably, and the bottom of the body at the front is raised accordingly.

Several changes will be noticed in this design, as compared with others of the same class built during past seasons. The lower panel on the hind seat is secured to the inside of the pillars, forming a recess or sunken panel, which can either be painted black or ornamented with painted slat-work. The back corner-pillar is made of one bent piece, and is framed into the bottomside. The middle-pillar is also made of one piece, and framed into the bottomside. The side on the upper part of the hind seat is made of solid wood, and is lapped in front over the middle-pillar, and mitered at the back corner-pillar. The boot panel extends from the front of the toe-board to the middle-pillar, and is grooved into the bottomside, and glued to the frame-work. Two upright pillars are mortised into the bottomside. An extra side-rail is lapped into the rocker and uprights, for fastening the raised front bottom. The foregoing, together with a short bar connecting the two uprights on top, constitute the frame-work. For the boot on the sides, an extra piece is glued to the outside of the boot-panel from the middle-pillar to the front.

This piece, which is $1\frac{1}{2}$ in. at the middle-pillar, the thickness of the pillar at that place, is tapered off to $\frac{5}{16}$ in., the thickness of the molding.

The moldings on the sides are all worked on. The molding dividing the boot into two sections, and extending from the middle-pillar to the dash, is glued and nailed on, and sets in from the outside of the middle-pillar $1\frac{1}{2}$ in. The upright moldings are $\frac{3}{8} \times \frac{5}{16}$ in., and rounded over on the outside.

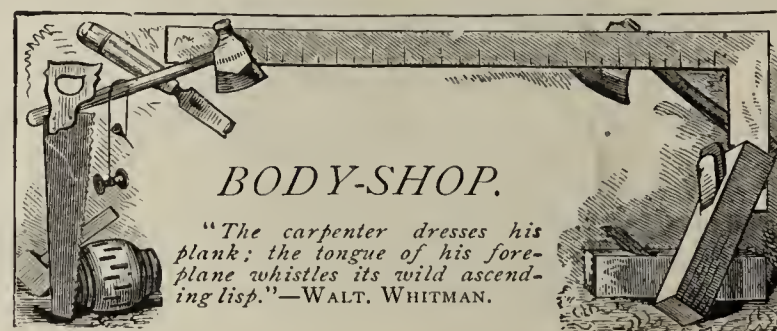
The roll at the bottom of the back end of the body is fitted between the corner-pillars, and glued to the cross-bar. The sides of the front seat are glued to the seat-frame, and moldings are nailed and glued on. At the back corner, the side and back moldings form a miter joint. The front seat is hinged to the boot, and turns over when the hind seat is to be occupied. The dash, as usual, is made of wood. The iron stays which were popular last season on this style of sleighs, forming a full compass sweep, have been changed somewhat in form in the present Fashion Plate, and here only the front half forms a compass sweep. Three iron cross-stays extend from the stays to the body.

Dimensions.—Width of body at the middle-pillar on top of the arm-rail, 43 in.; ditto at the back on top of the arm-rail, 39 in.; ditto bottom, $36\frac{1}{2}$ in.; ditto on top of the front seat, $38\frac{1}{2}$ in.; ditto bottom, 37 in. Runners, $1\frac{1}{8} \times \frac{7}{8}$ in. Shoes, $\frac{7}{8} \times \frac{5}{16}$ in., steel. The side-stays are $\frac{5}{8} \times \frac{3}{4}$ in., oval, and the cross-stays are $\frac{3}{4} \times \frac{1}{2}$ in., oval. Track, 40 in., from out to out.

Finish.—Painting of the seat-panels, dark green; and moldings and boot-panels, black. Running-part, light green, with two full lines of gold. Trimming, green cloth for the backs and cushion tops, laid out in large biscuits. Carpet, green, with black figures. Plumes, yellow. Mountings, brass.

* * *
NOTE.

The foregoing Fashion Plates Nos. 39, 40 and 41, together with particulars, were kindly furnished by one of the best-known sleigh-makers in this vicinity, who modestly declines being publicly credited therewith. They are true copies from the original sketches sent us, with the exception of No. 41, which, with his consent, has been changed somewhat in its details. It will be observed that the rear seats on these three drawings are all of considerable depth, allowing very full trimmings, and yet retaining comfortable seat-room. The depth of these seats can be reduced if preferred.—ED.



HINTS FOR BODY-MAKERS AND DRAFTSMEN.

IX. SIX DESIGNS OF CABRIOLET BODIES.

CABRIOLETS and Victorias rank among the most fashionable carriages of to-day, and give promise of remaining favorites for years to come. The styles now current are of great variety. Changes are made every season, but in a great many instances these are so slight as to be observable only to connoisseurs. The following designs, representing six different styles of Cabriolet bodies, have been selected from among the latest patterns popular in New-York and vicinity.



Fig. 1 represents a style that has been built for several years past. The moldings are finished in front as represented by the drawing. This style of finish was abandoned for a short time, but has apparently regained favor of late. The moldings are all worked on. In front, the boot panel forms the scroll, and the rocker from that place is rounded over. The hind seat is rather short, but affords ample seat-room.

Height of body from the ground, 21 in. Height of wheels: front, 2 ft. 6 in.; and hind, 3 ft. 6 in.

Fig. 2 shows another pattern similar to Fig. 1, but the body is of larger size. The sweep of the back corner-pillar has more fullness, and the bottom in the center is straight, while in Fig. 1 it is slightly rounded. The bottomside, or finishing piece, extending from the bottom of the

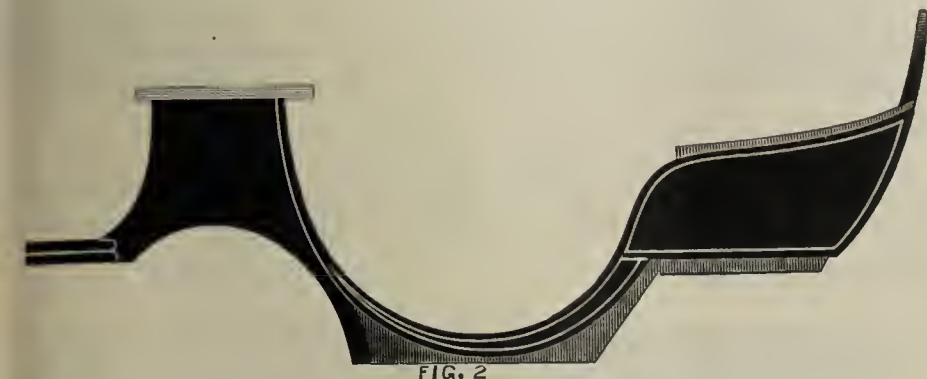


FIG. 2.

hind seat to the top of the boot, is of ash, and is made of two pieces spliced together in the center. The moldings are worked on. On the toe-board the piece for the moldings is glued on. It projects over the panel $\frac{5}{16}$ in., and in that way hides the joint of the boot panel; or it may be left solid on the rocker, the panel being let in to the rocker. Height of body from the ground, 22 in. Height of wheels: front, 2 ft. 6 in.; and hind, 3 ft. 6 in.

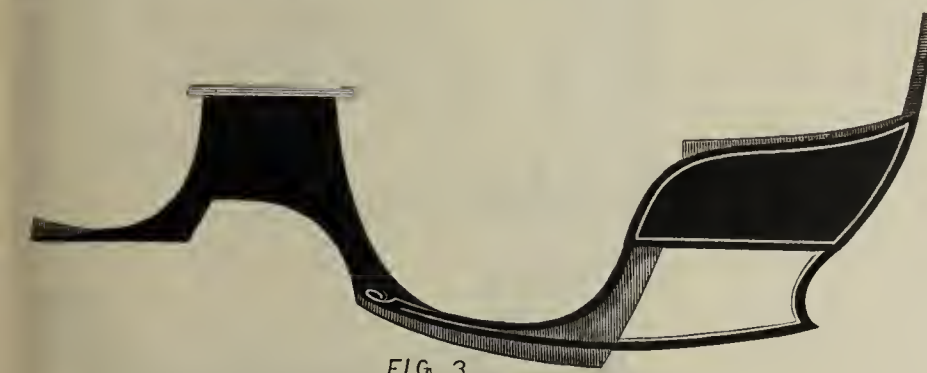


FIG. 3.

Fig. 3 shows a body in which several changes from prevailing patterns are observable. The bottomside has considerable curve, and an ogee pillar is placed at the back corner. Both the bottomside and ogee pillar are made of bent wood. The space under the seat at the back is left open; but this can be closed, if preferred, by a panel glued on the inside of the pillars and bottomside. In the latter case the back is paneled up all the way. The form of the wheel-house is not a continuous sweep, but it forms a corner near the front. The bottomside at the front will project out about $1\frac{1}{2}$ in. from the boot panel. Height of body from the ground, 21 in. Height of wheels: front, 2 ft. 8 in.; and hind, 3 ft. 8 in.

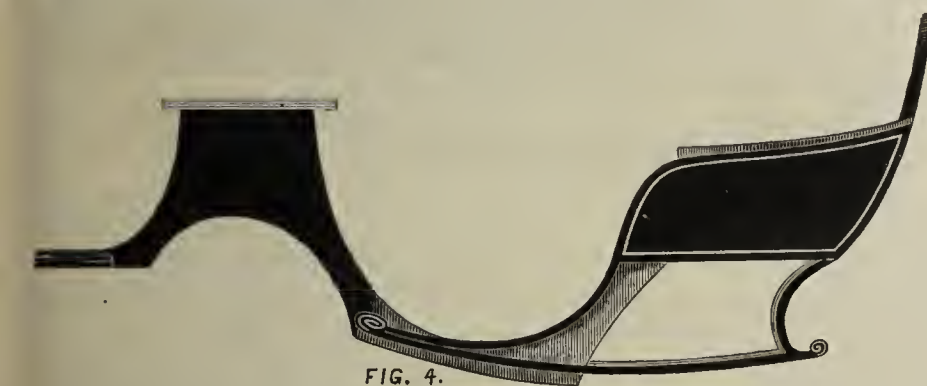


FIG. 4.

Fig. 4 shows a body somewhat similar to Fig. 3, but longer. The hind corner-pillar has the shape of an ogee pillar, but forms a sharp corner at the bottom of the center molding. The bottomside has less sweep than Fig. 3, and terminates in a scroll. The back corner-pillar is made of bent wood, but should be made heavier than that required for No. 3, to produce the sharp corner. The section under the seat is left open. The wheel-house has a continuous curve, but is swept higher than on the preceding bodies. Height of body from the ground, 21 in. Height of wheels: front, 2 ft. 8 in.; and hind, 3 ft. 8 in.



FIG. 5.

Fig. 5 shows a full body with a curved bottom. The bottomside is made of one bent piece. The arm-rail is lapped to the middle pillar. The rocker does not extend further than to the middle pillar. The bot-

tomside is glued to the rocker, and the rocker-plate forms a sharp corner at the termination of the rocker; but, if preferred, a block may be glued to the inside of the bottomside even with the rocker, and it is then swept off to a feather-edge at the bottomside. The child's-seat slides into the boot, and is held in position by two spring bolts. Height of body from the ground, 22 in. Height of wheels: front, 2 ft. 5 in.; and hind, 3 ft. 7 in.



FIG. 6.

Fig. 6, like Fig. 5, shows a curved body, but it is very full at the quarter, thus affording more seat-room, and the tendency to make the bottom sweep very full is the latest and perhaps most noteworthy change in the outline of Cabriolets. The middle pillar below the center molding is left heavier than on Fig. 5, and seems more in harmony with the other lines of the body. Bent bottomsides are used. If desired, the lower section of this body may be closed by a panel. The arm-rail is framed into the back and middle pillars. Height of body from the ground, 21 in. Height of wheels: front, 2 ft. 6 in.; and hind, 3 ft. 6 in.

We trust that, among these six selections of recent styles of Cabriolet bodies, those of our readers who manufacture this class of work may find one or more that may prove useful to them.

ALBERT KEHRL.

DESCRIPTION OF BURNS'S SECOND-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

PART II: DESCRIPTION OF DETAIL BODY DRAFTS.

(Continued from page 250.)

ACCORDING to request, I herewith supply a detailed description of the body drafts, Figs. 7 to 14, inclusive, which appeared in connection with my working drawing published with your last number, and which were only briefly alluded to in the description that followed in that issue.

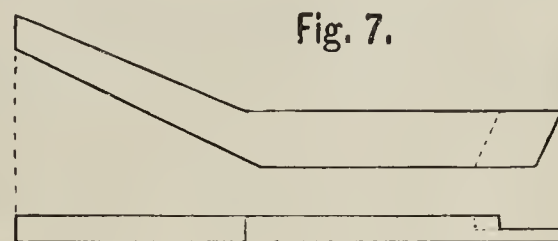


Fig. 7.

Fig. 7 represents the bracket piece, as finished to the pattern, and it also shows the top of the piece which is lapped or halved to receive Fig. 8, the second piece of the rocker.

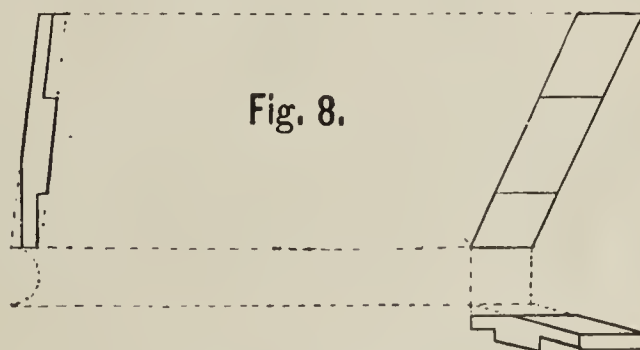
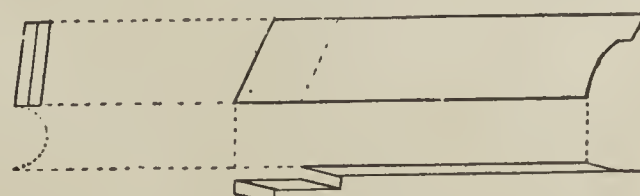


Fig. 8.

This second piece, Fig. 8, is shown from three points of view, namely: the front, side and top. The front view shows the piece as inclined and halved to lap the front and back pieces. The bottom lap is cut square to fit the lap of the bracket, which is framed outward enough to make $\frac{1}{4}$ inch recess on the second piece, thus avoiding any visible joint, and leaving a wedge piece to dress off inside. This mode of construction will also afford a gain in foot-room between the rockers.

Fig. 9.



The top lap is cut, as the piece is inclined, and receives the piece shown in Fig. 9, which is also inclined as Fig. 8, and is also shown in three views, namely: the front, side and top. The side view shows the form

of the piece, while the manner of halving with Fig. 8 is shown on the top view. These two pieces, together with Fig. 7, make the rocker.

Fig. 10 is the arm-pillar pattern, marked on the bent piece. This figure also shows the front of the pillar when finished. On this front view is shown the thickness of the bent piece required to make the arm-pillar, being three inches, as shown by the inclined dotted line. This line is

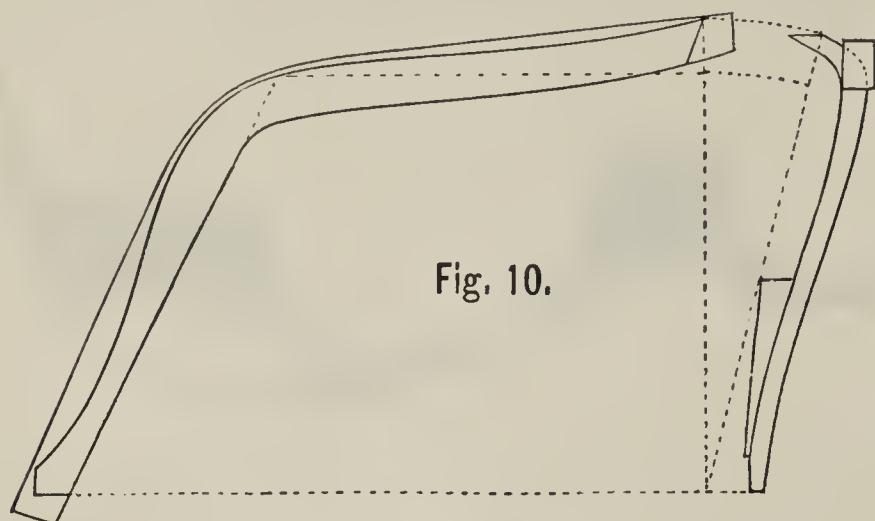


Fig. 10.

just inside the edge of the back corner-pillar, and requires a wedge piece to be glued on inside the arm toward the back, as shown on the cant of the working draft of the body (see Fig. 6, in last number). This front view also shows the pillar dressed out to fit the bracket and inclined rockers, and lightened out above the rocker and toward the back-pillar.

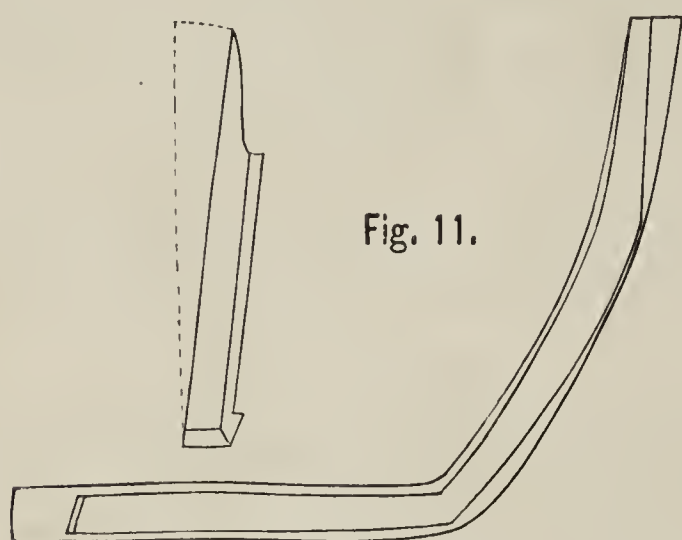


Fig. 11.

Fig. 11 represents the bottomside pillar marked on the bent piece, and also shows the back of the pillar. This back view shows the pillar inclined the same as the rocker, and also shows that this bent piece need only be $2\frac{1}{2}$ inches thick, but it requires a piece to be glued on at the top to strengthen it on the back board, as shown in the working draft of the body (see again Fig. 6, in the last number). The bottomside is tenoned into and screwed through the front pillar.

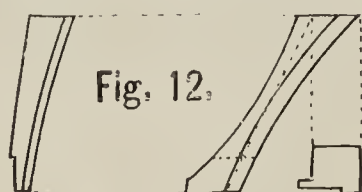


Fig. 12.

Fig. 12 shows the whitewood piece to fill the back of the pillar; and, to avoid joints, it is lapped over against the molding of the pillar. The moldings on the whitewood might be recessed at the bottomside, although many builders of good work make such joints even. The figure is shown in three views, namely: the front, side and the top end, as when fitted to its place.

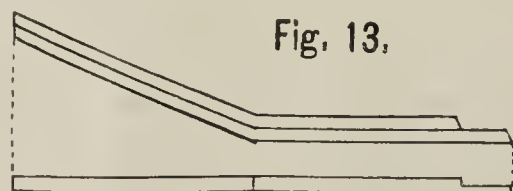


Fig. 13.

Fig. 13 shows the molding for the bracket, which is $\frac{5}{8}$ in. thick, and can be screwed from the inside. This molding, as shown by the aid of a second view, is lapped over the pillar, and meets the pillar molding so as to avoid deep joints.

Fig. 14.

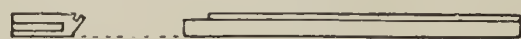


Fig. 14 shows how to groove and mold the tail-bar to receive the panel of the back. The bar is mortised into the rocker, with the molding extending over to the bottomside, which will avoid the nail heads which appear in nailed moldings.

Such is my detailed description of the body drafts; and I only hope that some fellow-workman or diligent apprentice may be benefited by these further particulars.

NEW-HAVEN, CONN.

JAMES BURNS.

THE BAILEY LANDAU TOP.

TO THE EDITOR—DEAR SIR: Among the latest and most noteworthy English inventions relative to vehicles, is a new patent head or carriage-top, the invention of Mr. W. H. Bailey, cashier with Messrs. Aldebert of Long Acre, London.

The following sketches will, I think, clearly explain its action and principle. Fig. 1 shows the head when raised, as applied to a Landau; and Fig. 2, the same head when lowered. The letters in both figures refer to the same parts.

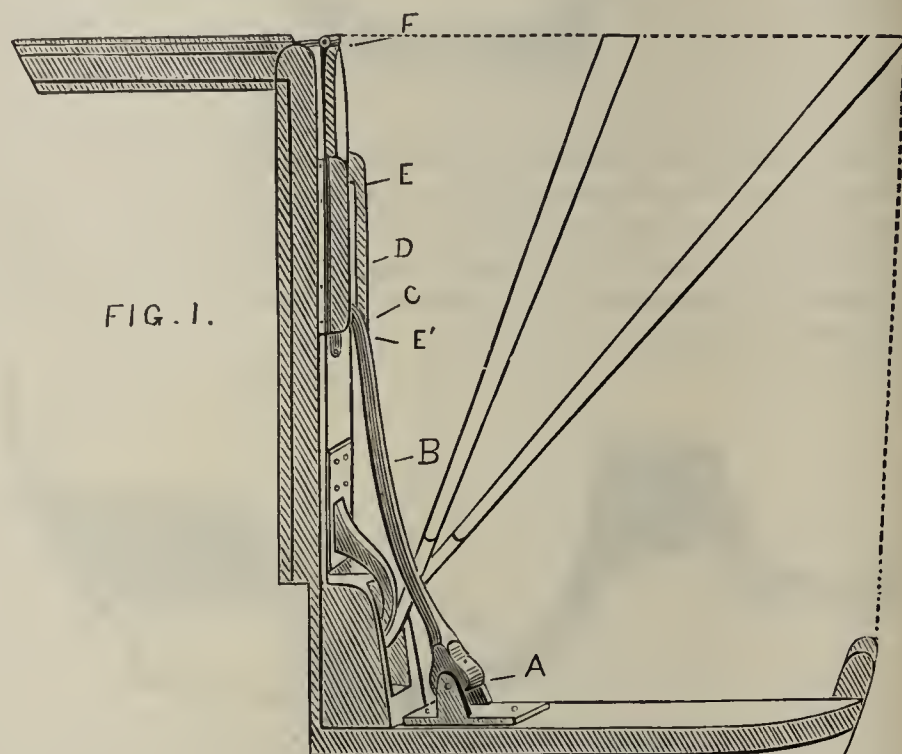


FIG. 1.

A is the motive spring, and B a lever arm, situated about as usual. At the end of the lever is a wheel C, which runs upon or over a bridge D, fixed on the pillar, and provided with slots E and E' at either end, into which the wheel C drops on arriving at their place. One of the slots E' is so situated as to hold the lever arm; and, as a consequence, the head is firmly fixed, as shown in sketch No. 1. The pressure of the spring A upon the lever arm B, secures the whole. The other slot E, is so placed

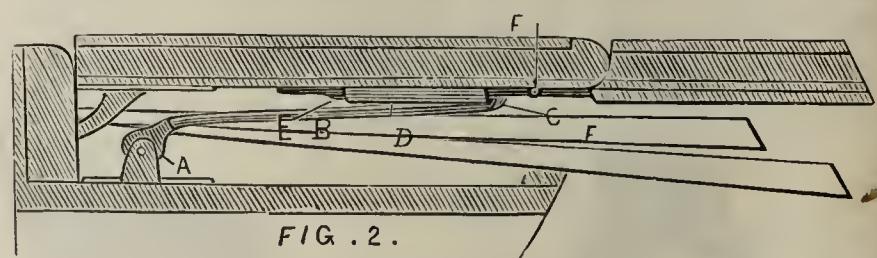


FIG. 2.

as to hold the head in the position illustrated in No. 2. The pressure of spring A secures it in this position. When it is desired to raise or lower the head, it is of course necessary to throw the wheel C out of the respective slot, which is accomplished by the motion of a peculiarly constructed spring-hinge F, which lifts the wheel out of the slot on to the bridge D, along which it runs until it reaches the other end, when it again falls into the slot there situated, and is equally firmly fixed in the opposite position.

This arrangement of a lever arm running up a bridge dispenses with the employment of a spiral spring (a constant source of rattle); and the locking of the lever arm, by the wheel dropping into the slots and being held firmly there by the spring, renders outside or inside joints equally unnecessary. Consequent reductions both in cost and weight are further recommendations of this construction, and there is also less labor in fitting.

This new head is already in use by Messrs. Aldebert and some other firms, and seems to find much greater favor than is usually accorded to newly-patented inventions in England.

SPIRO.

TO POLISH EBONY.

To put a high polish on ebony, that will be durable, give the work two coats of fine copal-varnish, and, when this is dry, rub it down smooth with fine pumice-stone; put on a third coat of the same, and rub down with rotten-stone; clean, and put on a flowing coat of best spirit copal-varnish; and, when this has become quite dry, polish with chamois-skin and the palm of the hand.—*Popular Science News*.



CARRIAGE-PARTS, WITH SPECIAL REFERENCE TO PLATFORM WORK.

LECTURE BY MR. H. G. SHEPARD, OF NEW-HAVEN.

[The following is a continuation of our full stenographic report, expressly prepared for *The Hub*, of the lecture delivered by Mr. H. G. Shepard, of New-Haven, Conn., on the evening of Wednesday, Feb. 20th, before the Class in Carriage Drafting and Construction connected with the Metropolitan Museum of Art Technical Schools, New-York.]

(Continued from page 257 in last number.)

COMMON FAULTS IN CONSTRUCTION.

I desire now to speak of some common faults in the construction of carriage-parts.

I have here a carriage-part which I found in the school's museum of models. I trust it is not kept here to illustrate the graces of carriage-part making. In this carriage-part we have a practical illustration of



Fig. 19. Front View of Top Bed.

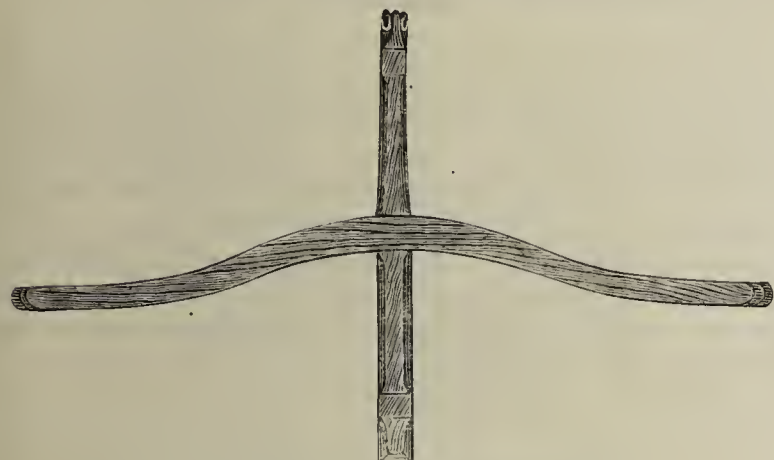
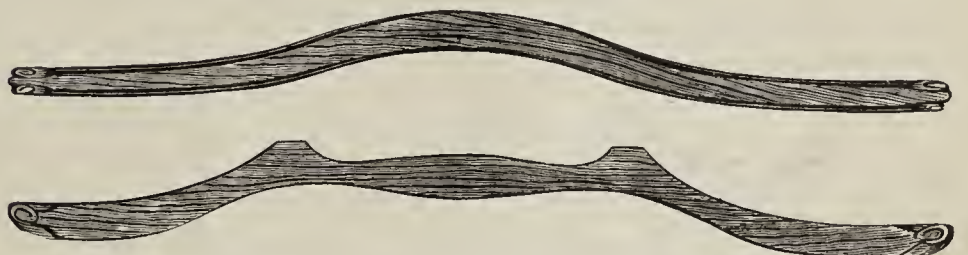


Fig. 20. Top View of Top Bed and Puncheon.



Fig. 21. Side View of Top Bed and Puncheon.



Figs. 22 and 23. Top and Front Views of Bottom Bed.

FIGS. 19 TO 23. DIFFERENT VIEWS OF COACH GEARING CRITICIZED.

nearly all the faults possible in a carriage-part, and to the fullest possible degree. It is called a carriage, but a "mis-carriage" would be a more appropriate term.

Here we have the bottom bed (Fig. 23). Here, at the weakest point, we find it the smallest. We turn it up, and again, at another weak point we find it is the smallest. Right where it requires most strength, it is made the smallest each way. Again, we have here in the center a great bunch where the king-bolt comes through. There is no demand for this strengthening at all. One of the requirements of harmony is to make your bed without bunches, and nearly of even size between the bearings of the fifth-wheel. The top bed (Fig. 19) is in harmony with the bottom. We find that great bunch in the center, where it is not needed, and every fault in the bottom bed has been duplicated in the top. Take it all through, and you find the same lack of judgment. I think this is the best illustration I ever saw of the imperfections possible in carriage-part making. Nearly all the common and some uncommon faults are combined here. It is worth the attention of all who are studying this subject. You can certainly learn as much from it in the way of caution, as by studying a well-made carriage-part. When you learn what to avoid in this world, you have traveled far toward learning what to adopt as a substitute. Are there any more questions to be asked? Perhaps I have already talked too long.

MR. BRITTON: No, sir; we have all been greatly interested.

FURTHER FACTS REGARDING END-COMPRESSED TIMBER.

MR. PRAY: What per cent. of end-compression do you think it safe to apply to such prepared wood as you exhibited early in the evening?

MR. SHEPARD: I usually give about 25 per cent.; but I think wood is capable of being safely compressed endwise from 75 to 80 per cent. I believe wood can be compressed until it possesses nearly the same specific gravity as cast-iron, and until it is nearly equal to it in hardness. I recently sent a specimen of that prepared wood to Philadelphia, with

marks where to split it and directing how to split it. I think the gentleman to whom I sent it, is here to-night. He reported to me that, in splitting-it, he broke a cold chisel, it was so hard. He first tried an ordinary chisel, but that had no effect upon it, and it broke his cold chisel in his efforts to split it. You have no idea of the toughness of such end-compressed timber until you try to split it.

MR. BRITTON: Why can't we, by using this method, make serviceable hubs out of soft wood?

MR. SHEPARD: I believe the best hubs in the world can be made by end-compression. I do not think the expansion would amount to enough to injure the hub at all, and it can be toughened to a wonderful degree.

A VOICE: In the case you have just spoken of, what wood would you prefer?

MR. SHEPARD: I have not experimented far enough to determine that point. I find that any wood will toughen up the same way,—whitewood, or poplar, as it is called, as well as hickory, although the tougher the wood is before it is put through this process, the tougher it will be afterward.

Are there any more questions to be asked on my subject? The field is a broad one. I know I have not covered it as fully as I ought to, but I am ready to answer any questions that I am able, and if I cannot answer them I will frankly tell you so.

Before leaving you, I desire to thank the scholars of the school for the attentive hearing they have given me to-night. I am glad you are trying to improve yourselves, and to take a better position in the shop, and in life. By so doing, you are not only benefiting yourselves, but you are benefiting your country, for, if there is anything in which we are seriously behind the people of Europe, it is in artistic design; and you are working in a direction to help remedy that. I believe the time is coming when

practical education will be connected with our common schools, and when the workshop will form a part of our common-school system of education. That I believe to be the school of the future. I have great respect for the members of the Carriage-Builders' Association who are doing what they can to reestablish the apprenticeship system; but, with all due respect to them, I believe they are on the wrong track. I admit that they are far better informed than I am, as to the needs of the trade, yet I feel that they are wrong. I believe the educational system of the future will have connected with it industrial schools, and I believe that we may as well attempt to reestablish an old abandoned stage route as to reestablish the old semi-slavery system of apprenticeship under the present conditions of American civilization.

Boys of the school, be persevering! Hold on, and in the end you will find that it will redound to your own benefit as you make yourselves more valuable to your employers. I wish I could be heard by every artisan in the country—yes, every laborer. They are constantly complaining and struggling for more pay. They are uneasy. Occasionally they try the old experiment of striking. I do not blame them for wanting more pay—that is every workman's right; but I think they are working in the wrong way to get it. If they spent one-half the time and one-half the money in making themselves more valuable to their employers, that they do in bemoaning their condition, they would be much better off to-day. It would be far better for all concerned if they had spent in this manner one-half the money they have lost in the course they have pursued by striking.

Artisans and laborers, if you wish to raise your pay, first raise yourselves! Do not try to get a dollar for a penny whistle, but make your whistle worth a dollar, and you will find no trouble in getting the money. [Applause.]

MR. HOUGHTON: Mr. Chairman, I move that the thanks of the audience be extended to the speaker of the evening for his interesting and instructive lecture.

(THE END.)



FIRST-PRIZE DESIGN FOR IRONING A PHYSICIANS' PHAETON.

[By Mr. R. H. Lee, of No. 214 South 5th-street, Philadelphia, Pa.]

(Continued from page 259 in last number.)

Be careful not to allow the oval part of the bolt in the top of the fifth-wheel to reach below the bottom fifth-wheel, or to touch the anti-rattler cups; it must clear these at least $\frac{1}{8}$ inch.

To make this work requires some skill as well as experience, but when it is finished, the smith will have no reason to regret it, for his labors will be rewarded by a superior job of work.

To complete one of these Physicians' Phaetons, that is to forge it complete, will take an ordinary smith about five and a half days of steady work. The writer has repeatedly done it in less than that time, and in the last twelve years I have perhaps ironed one hundred such. This mode of making a physicians' gearing was originated by me some thirteen or fourteen years ago, and consequently it is by no means new, but it has given general satisfaction, and I have thought it would do no harm to send it, as the factory where I work now, and where I have been employed for the last fifteen years, stands second to none in building physicians' vehicles, or, in fact, anything else on wheels which it produces. I hope I shall at least have your opinion regarding its characteristic features.

CONNECTION OF PERCH WITH AXLE.

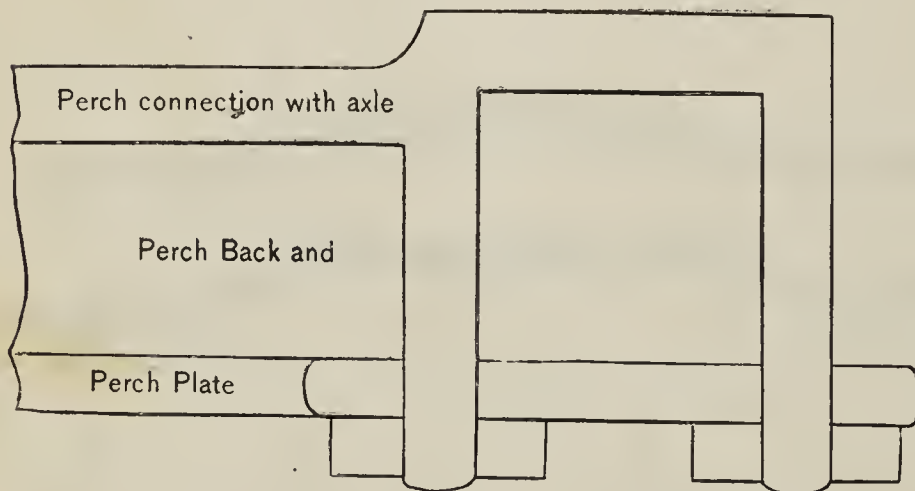


FIG. 15.

In Fig. 15, the mode of connecting the perch with the axle is illustrated. The top perch plate and axle clip are made of one piece, and the perch is level with the bottom of the axle. The perch not being as heavy as the axle, necessitates the plate and clip to be swaged down, as is plainly shown in the cut.

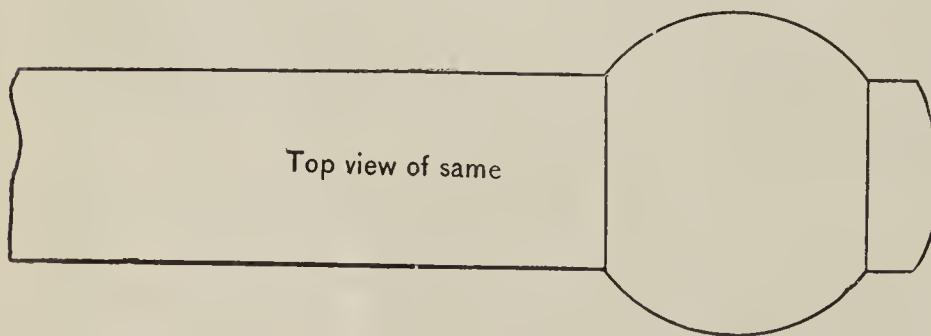


FIG. 16.

Fig. 16 illustrates the top view of the perch plate. The top plate is broader at the axle, forming a compass sweep at each side, and making a better finish.

A SUGGESTED IMPROVEMENT FOR PHYSICIANS' PHAETONS.

As already mentioned, I am employed in a factory where numerous physicians' vehicles are made, and have given considerable attention to the subject; and I shall present to you, in writing, for your consideration, a plan by which an adjustable front can be used on physicians' carriages in winter, to protect them from the inclemencies of that dreary season, and by which the interior can be kept dry. It is this:

A piece of ash, say $3 \times 1\frac{1}{2}$ in., is fastened to the bottom of the vehicle, at a sufficient distance to allow foot-room, and also at the front of the top by thumb-screws, with a suitable slot to receive it. Two doors are hung

sufficiently high to allow the occupants to see over them, opening forward to allow ingress and egress. Above the doors, and connecting with them to insure against the entrance of snow or rain, are two separate windows, one to each door, made to raise upward to the roof, and there be hooked up out of the way. A slot in the door, for driving purposes, will then complete the job.

We have constructed a Hansom Cab upon the above principle, and it worked to a charm; I see no good reason why it should not apply to a physicians' carriage. To be sure, it would be better to have a paneled job for this purpose; but I think this would be an improvement over the ordinary physicians' vehicle, and I know it is practical. The additional weight would not exceed 30 lbs., and much time would be saved as compared with fastening up the apron, etc., and there would be a certainty of keeping dry inside.

ANOTHER SUGGESTED IMPROVEMENT.

Another improvement I wish to speak of is the suspension of the hind carriage-part, as illustrated in the accompanying Fig. 17, which shows a design for ironing, etc.

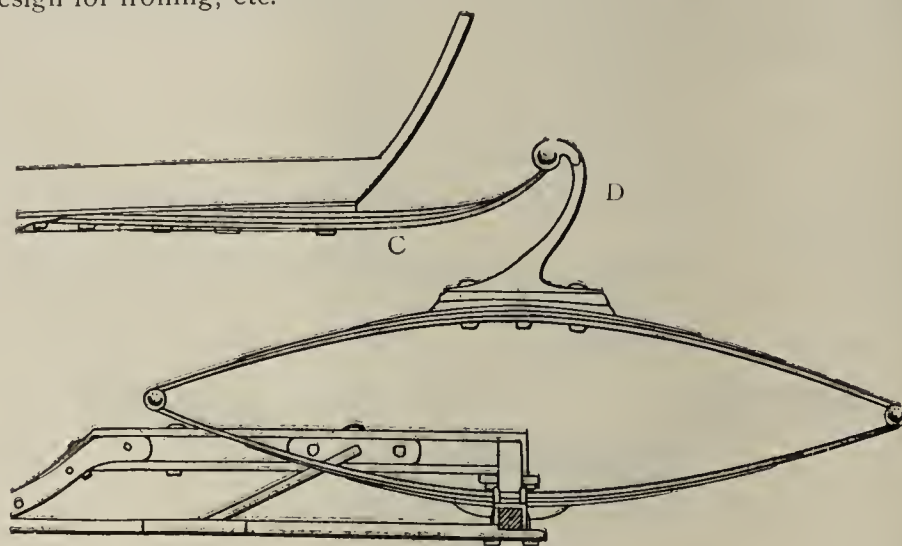


FIG. 17.

Instead of using a pump-handle, let there be a spring, looped as shown in this Fig. 17, where D represents an iron loop attached to the top of the back spring; and C, a spring of three plates, connects the body and gearing, which is a sure prevention of jarring, no matter how rough the road. The selection and placing of this spring, C, requires, of course, some calculation in order not only to make it ride down as easily as the under elliptic spring, but to neutralize the effects of rough streets, etc., and it should be composed of somewhat heavy steel. What I have used has given entire satisfaction.

THE END.

DROPPING OF BEDS.

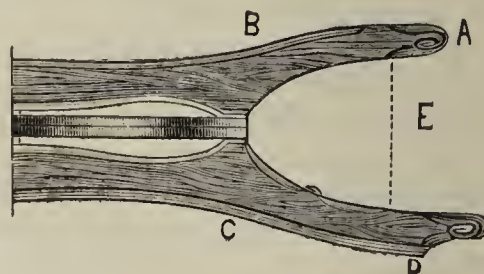
EDITOR OF THE HUB—DEAR SIR: We have a small wager at stake on a problem relating to carriage-parts, on which we are unable to agree in any particular, unless it is to abide by your decision. The wager is merely nominal, and of no special account in comparison with the importance of the subject at issue. One of us is a smith, and the other a wood-worker.

A little devilry has appeared in our carriage-parts, and neither of us is willing to confess that he is at fault. Our carriage-parts are made with a view of being (when ironed) 10 inches over all at ends of beds; but when ironed and ready to put under the body, they are invariably lower by an inch, more or less.

Now, then, where is the fault? Where does the discrepancy creep in? Is it in the wood, or in the iron? And how may we overcome it?

Signed: { J. H., Carriage Smith.
M. G., Wood-worker.

ANSWER.—If the woodwork lies about for some time before being ironed, and especially if the beds are made from bent stuff, there is liable to be more or less shrinkage of both beds at B and C (see accompanying sketch).



The end of the upper bed will then naturally drop to a greater or lesser extent, and the bottom bed will also incline upward. There will also be more or less shrinkage at A and D, and between those points and B and C, so that, when placed together, the distance between A and D, as per dotted line E, will be materially less after the timber has had a month's seasoning, than when made. The shrinkage and consequent reduction of distance between A and D, resulting from such change of shape, might easily vary $\frac{1}{2}$ inch or more.

Where the woodwork is liable to be ironed by fits and starts, and to lie about the ironing room a month before being put together, it would be

well for the wood-worker to anticipate shrinkage by allowing a trifle more material, leaving a little more distance between the points, and giving further aid by temporarily bolstering the whole by a stiff stay of wood or iron, to remain until the work is ready to put together. One or two coats of priming will also help materially, in such cases, by keeping away atmospheric influences.

When the smith undertakes to iron the woodwork, he ought to be posted as to the distance required at A and D, and if he cannot bring up the woodwork to the proper height, with the top plate of the upper bed and the bottom plate of the lower bed, he has an easy remedy, which is to increase the depth of the king-bolt collars or sockets, and the bearings of the under plate of the top bed and upper plate of the bottom bed at the fifth-wheel.

The writer's method of proceeding, in such cases, is as follows: I first secure the top plate of upper bed and bottom plate of under bed temporarily, and then measure the distance. If there yet remains too much to be made up with the sockets and bearings, I spring up the upper plate and bed, and spring down the under plate and bed, leaving both of them just a trifle more than I require to allow for recedence.

Another point worth noting, as a means to help preserve the structure, is the mode of applying the bolts and screws which secure the plates to the beds. The holes in the wood and iron ought to be so as to allow the bolts to fit snug into the wood, and to pass through the iron without injury to the thread. The screw holes ought to be so that the screws will fit with precision, and allow them to settle in and down thoroughly.

The bet referred to had better be called "off," as it would be difficult to decide which party has the right of it. The probability is, that both may be a little at fault.

NOTES ABOUT SETTING AXLES AND TIRING WHEELS.

WAY back in the "fifties" my experiences in the smith-shop began, and they have continued almost uninterruptedly ever since. I was introduced to the "boss of the village forge," and was soon made familiar with my "cub" duties, which, taken all together, I rather liked.

My first knowledge of setting axles was learned then and there. I was then taught to give them about 4 inches swing, or that much wider on top than on the floor; and to gather them the width of the tire, if not over 1 inch wide. Then we came down to $\frac{3}{4}$ inch gather, and so on down to $\frac{1}{8}$ inch; and instead of measuring the top, we set the wheel $\frac{1}{2}$ to $\frac{3}{4}$ inch under plumb spoke. But the change was a very gradual one in our section of country, and the question of setting axles is indeed a very difficult one to settle, and the day may be far in the future when absolute perfection will be reached. We ought, however, meanwhile to continue our search for perfection, and I am glad to see that you invite correspondence and criticism upon the various existing modes and ideas.

My plan, for several years past, has been to set wheels $\frac{1}{2}$ inch under plumb spoke for ordinary vehicles, and $\frac{3}{4}$ inch for very light vehicles, measuring outside of spokes, close to hub and outside of tire. Vehicles for country use I give $\frac{1}{4}$ inch gather, and for city use $\frac{1}{8}$ inch. I have known D. Arthur Brown's Concord axles, that I have set in this manner, to run seven years, and not show much wear even then. My method may be wrong, and others may be better, but so long as axles set by my plan run easily, with less draught than others, and wear well, I am convinced that my way is not a very bad one.

Set your wheels to track 4 ft. 8 in.; then run the vehicle three months, and you will find that the track has widened, if the dish of the wheels has remained the same. A heavy load also widens the track at once.

Take an unloaded vehicle, run it across the floor until the wheels have turned once or twice around, and if the track has neither increased nor decreased in width, you may be sure your gather is about right; and if the tire is level on the floor, your job will run easily, nor will the tire be inclined to work off sidewise.

Theories I have none. I am merely guided by long and hard experience, and by actual facts thus gained; and when people tell me my vehicles run more easily than the generality of the same kind, I am inclined to continue in the same old groove until a better one has been discovered. At the same time, however, I am in the progressive ranks, and ever ready to lend my aid to any movement that will advance the interests of our craft.

If wheels could be made straight, under-set might possibly be dispensed with, but as dish is necessary, so is under-set.

It seems to be necessary to dish patent wheels more than plain ones, and I find $\frac{5}{8}$ inch for medium, and $\frac{1}{2}$ inch for light wheels, to give good results. The dish almost invariably comes out of a new patent wheel, and when it gets straight, or begins to go back, the front edges of the spokes commence splitting near the hub. This suggests the special importance of keeping the tires properly set on this class of wheels.

Let the draught of the tire be mostly on the rims, only leaving enough

on the spokes to nicely draw the rims down to the shoulders. Plain wheels do not require so much dish, and seem inclined to take more by usage, instead of losing what they have.

TUBAL CAIN.

HOW TO FURNISH A CARRIAGE BLACKSMITH-SHOP.

11. HAMMERS AND TOOLS.

TO THE EDITOR—DEAR SIR: Our business has increased to such an extent that we feel we shall soon have to employ a power hammer to help us out.

We have had no experience in such matters, nor are we acquainted with any one who has gone through the mill. Can you, from your own experience, or from the experience of your many acquaintances, advise us which is best to adopt, a steam-hammer or a trip-hammer; and, if either, what make is the best?

Also, perhaps you might be able to advise us as to the best hand hammers, sledges, swages, chisels, and other tools for forging purposes; and whether it is better to make or to buy.

MERRIMAC.

ANSWER.—(1.) Power hammers are rapidly becoming an important feature in carriage manufacturing. The progress they have made within a few years past is remarkable. Formerly we had the massive trip-hammer, requiring several square yards in which to locate the plant, together with the gears and belts necessary to raise the hammer over the tilting point; and we had also the deafening noise and clatter which began as soon as the tilt-hammer was lifted off the block or anvil.

In our opinion, the most useful trip-hammer for the carriage forging room is the Bradley cast-iron hammer, as it is the lightest and most effective, occupies the least space, and is as durable as any. It seems to come the nearest of any horizontal hammer to giving what is termed a "dead stroke" or horizontal blow, such as is given by steam-hammers or forge drops. If you do not use steam power, but are dependent on water or other motive power than steam, by all means use the Bradley.

One of our correspondents who has used a steam hammer for some time past expresses the opinion that "the trip-hammer is a thing of the past." Comparatively speaking, perhaps it is so, although those engaged in its manufacture tell us that they are supplying more now than ever before. The smallest tilt in use to-day (not to mention an "Oliver") will require as much room to make the plant as would be necessary to put in three one-thousand-pound drops, and yet it would not be able to do the work of a three-inch-cylinder steam-hammer. Steam-hammers have certainly revolutionized things. They take up little room, and one of them can be made to do the work of two tilts.

"This one you see here," says one of our informants, "is made out of the Union, that is, in Jersey; it is called the 'Eureka,' and it is so small and occupies so little space, that it is almost a wonder they ever discovered it. Here it is bolted fast to an upright timber anchored to the wall. The anvil weighs half a ton, and is cushioned on three tiers of 8 inch timbers, four in each tier, the tiers being transverse to each other. The timbers are laid either on the bed-rock, or a piece of masonry, 36 inches square and about 36 inches deep. The depth depends on the bottom or earth. It takes from forty-five to fifty pounds of steam to work the hammer to perfection. One hour's instruction will be enough to learn how to handle it."

With the steam hammer you get a dead stroke every time, and with the "Eureka" you can strike with either one pound force or one thousand pounds force, as you may require. A correspondent says: "In two hours I can draw down and swage with a steam-hammer, more irons than a smith and three helpers can in six hours, and perhaps as many as they could in a day."

Of course you want dies to work with. Chilled cast-iron will answer nearly all purposes to which it can be worked with profit. Take a pattern or model of what you want to your iron founder, and tell him you want a chill made to strike up such and such pieces of work. He will know what you require, and will readily make it. You pay for the chill and pattern. The pattern belongs to you, and, if it is made right, it will answer, with a little changing, for a number of shapes. When you receive the chill, it will be necessary to clean it up and get it ready for use.

In order to learn about hammers, sledges, and other forging tools, we called at a place where there were forty or more forges in full blast; and to our inquiries we received the following answers: "No sir, we never bother with making tools. We can get them on order all the way from eighteen to forty-five cents per pound. We haven't the facilities for making them with profit. Here is a hammer which cost, with handle, about sixty-five cents, made of the best cast-iron. It would have cost us, to make the same, and in the same shape, about three times that sum. Here are some steel swages which cost us forty-five cents a pound. How much altogether? Well, the two weigh about five pounds. That would be \$2.25. To have made them ourselves would have cost more than twice that. We simply send the size we want the tools made, and there's the end of it! Just think, here is a sledge weighing ten pounds, which cost us eighteen cents a pound, or \$1.18,—at the very best we could do, at least \$1 less than we

could make it for. How can others make them so cheap? Why, simply because they have the proper tools, and make a specialty of such work. Yes, it is a new departure to a certain extent,—that is, tradesmen in iron are just beginning to look at these things from an economical point of view, and when a few see it and spread the intelligence, others grasp the situation, or 'catch on' as the phrase goes; and before long the small specialist develops into a full-grown manufacturer, giving employment to hundreds of good mechanics. Yes, a blacksmith nowadays can purchase every tool he requires, including tongs, fullers, chisels, punches, flatters, set-hammers, and everything else that belongs to the paraphernalia of the blacksmith's forge or tool bench."

"Who makes them, and where can they be found?" we further asked our informant.

"Well, that is a puzzler. I presume there are a dozen houses who make more or less. Perhaps the best is the Providence Tool Company, of which the Henry B. Newhall Company, of 105 Chambers-st., in this city, are the general selling agents. We purchase nearly all our goods of this kind from them. Yes, I am confident that if your carriage-maker friends were aware of the fact, they, like us, would purchase such tools instead of making them, and in the end save hundreds of dollars every year, which are now lost by them in trying to make tools for which they have not the proper facilities. Why, yes sir, you are at liberty to publish what I have said to you, and I feel assured, if you do, that you will do a good turn for many who are still in the dark, more or less, on the subject of tools."

In the foregoing we have briefly reported the result of a day's walk and talk among intelligent mechanics in this city. Our Merrimac correspondent and others may now read and digest for themselves.

INQUIRY FROM ENGLAND FOR GAS TIRE-HEATERS.

LIVERPOOL, ENG., May 21, 1884.

MR. HOUGHTON—DEAR SIR: I should be much obliged if you could inform me through your journal, or per letter, the best way of constructing a gas tire-heater. Also, would the gas heat be sufficient for steel tires up to $1\frac{1}{2} \times \frac{1}{2}$ inch? Our tires run from 2 ft. 2 in., to 5 ft. diameter. I shall be glad if you can give us the information above asked for, and I think it would be useful also to many other English coach-builders. Should you reply by mail, please name your charges, and we will remit by return.

Yours respectfully,

G. S., of Simmons & Hooper.

ANSWER.—Gas tire-heaters have long been used, and with perfect success, by many American coach-builders, including Messrs. Brewster & Co., corner Broadway and 47th-st., New-York; Messrs. A. S. Flandrau & Co., corner Broome and Mott-sts., New-York, who would no doubt willingly furnish our correspondent with full particulars regarding their experience, if he should feel inclined to address them. They are manufactured by Mr. S. G. Reed, 281 South-st., Boston, Mass., who will also gladly furnish particulars to any correspondent.

The heating of tires by this method consumes less time, and the cost of the gas is less than the cost of coal when heated at the forge. The heaters are made of different sizes, and the cost for a machine such as our correspondent probably requires, is about \$125, complete, including joints, flexible tubing, patent burners, etc.

The time and gas consumed, for the different sizes of tires, is said to average about as follows:

Tire $\frac{1}{8} \times 1$ in., 1 minute, consuming 2 ft. of gas; tire $1\frac{1}{4} \times 1\frac{1}{8}$ in., 2 minutes, consuming 4 ft. of gas; tire $\frac{3}{8} \times 1\frac{3}{8}$ in., 3 minutes, consuming 8 ft. of gas; tire $\frac{3}{8} \times 2$ in., from 5 to 8 minutes, according to the draught, consuming about 3 ft. of gas per minute; tire $\frac{3}{4} \times 3$ in., 10 to 15 minutes, consuming about 3 ft. of gas per minute, according to the draught.

By using wind from a fan blower or weight, tires can be heated in less time, and with less consumption of gas.

We would not advise our correspondent to attempt to construct such a heater on his own account, as the secret of success lies in the improved burners which Mr. Reed has developed after long and expensive experiments.

BOOK ON CARRIAGE SMITHING DESIRED.

ST. THOMAS, ONT.

EDITOR OF THE HUB—DEAR SIR: Will you be kind enough to inform me through *The Hub*, which is the best book for carriage-smiths to get, that is complete, but which deals mostly with platform work. I want one that has the gearings illustrated in it. This is for one that has worked some at this class of work, and would like to understand it more thoroughly.

Yours, with thanks in advance,

A SUBSCRIBER.

ANSWER.—We know of only one book devoted to the subject of carriage smithing, namely: "Carriage Ironwork: By Wm. N. Fitz-Gerald;" but that is confined to tables of dimensions, and gives no illustrations. We think you will have to depend upon the trade journals for the information you require; but if you will name any points that you desire particularly to clear up, the editor of our Smith-shop Department will be happy to lend you such assistance as he can.



CRACKING OF ROOFS, AND HOW TO PREVENT IT.

EDITOR OF THE HUB—DEAR SIR: Carriage-makers have considerable trouble with tops of coaches cracking, either from the paint, or manner in roofing over in the wood-shop.

(1.) Will you give me the best method for boarding over; and (2) also, what kind of canvas is best for covering over; and (3), last of all, what is the best and most successful way to paint, in order to avoid the cracks.

GILES G. BARKER,
with Geo. L. Browneil.

NEW-BEDFORD, MASS.

ANSWER.—All paint is perishable, and is sure, after the lapse of a longer or shorter period, to either disintegrate or crack; and this period, in the case of carriage roofs, is likely to be rather shorter than longer.

(1.) Our best shops, to-day, use whitewood for their roofs, prepared in either two or three layers or veneers, with the grain running diagonally or crosswise, which are glued together. The so-called "built-up wood" supplied by Mr. French, of this city, is unquestionably the most reliable material for roofs that has thus far been introduced, and we recommend our correspondent to give it a trial.

(2.) In the next place, our best shops are accustomed to cover their roofs with light muslin or canvas, glued on, and without any muslin or blocks on the inside. Mr. Jas. Ward, of this city, engaged in one of our leading shops, has a secret method of cementing on a patent roof cover, which, under his treatment, seems to become part and parcel of the roof itself; and this is thought to withstand cracking as well as any roof covering thus far devised. We recommend our friend to correspond with Mr. Ward on this topic. His address is mentioned below.

(3.) We now come to the painting. Our theory of painting,—and we believe it to be the correct one,—is to apply as little paint as possible, so long as the desired result is obtained. The old method of applying six or seven coats of thick roughstuff to fill up the canvas surface of roofs, has long since been laid aside. A few coats of roughstuff, applied evenly, and allowed to dry thoroughly, will give the best results.

Observe the same principles, above set forth, in the varnishing, using the best material, and allowing each coat to dry thoroughly. L.

* * *

The unusual importance of the subject above treated upon, has led us to request further particulars from the well-known expert above alluded to, Mr. James Ward, employed with Messrs. A. S. Flandrau & Co., at No. 372 Broome-st., New-York, who has kindly communicated the following resumé of his experience in covering and painting carriage roofs. The foregoing response, combined with this, include, we think, a very full review of the most modern opinions on the question. Mr. Ward writes as follows:

* * *

TO THE EDITOR OF THE HUB—DEAR SIR: (1.) In answer to your inquiry regarding the best method of painting a coach roof so that it will not crack, I should at the outset direct your attention to the fact that, no matter how perfect the process, or how good the materials used in the painting of a roof, it can not be insured from cracking before its time in case the foundation upon which the paint is laid is in any way defective.

Most painters of experience will agree with me, I think, in maintaining that the primary cause of such cracks in roofs is in the canvas, or rather in the method used in fixing the canvas on the wood beneath; those great cracks which so frequently occur in the carriage roof while the paint on the other parts is yet comparatively sound, being often the direct result of some disturbance in the canvas or wood itself, which breaks the painting overhead, no matter how well that portion of the work has been executed.

Moreover, the roof being more exposed to the sun's heat than any other part of a carriage, is subjected to a severer test than the other panels, and, as a matter of course, it is the first part to perish and crack. Therefore, to secure its durability, it claims throughout stock of the very best kind; and, with such stock applied in the following manner, it should at least wear well and not crack prematurely.

If the covering of the roof is rough canvas or duck, which is the material generally used, give this, as a priming, a coat of white-lead, thinned with good boiled oil, and a little turpentine. Make a good full

pot of this, and give the canvas a swimming coat, so as to thoroughly soak and fill up its texture. When this has been accomplished, the priming will become pasty and thick upon the surface, and the canvas will absorb no more. Let it remain so for about an hour; and then, with a scraper, such as woodworkers use, remove the excess which lies on the surface, using the scraper not in a light scratchy manner, but drawing it firmly in regular ridges from the center to the edge, frequently cleaning the scraper meantime with a putty-knife. When the roof has been carefully treated in this manner, the utility of the scraper will become apparent, for the canvas, while having the advantage of being thoroughly soaked, and having the lead forced into it by the scraper, will still be left with an open surface which allows the air to enter and dry it evenly and surely.

After this priming coat has had about four days to dry, the roof should receive a coat of roughstuff (I use Valentine's, by preference), mixing with it, for this first coat, a proportion of one-third lead prepared in the same manner as the priming. Apply this freely, but not as heavily as when coating with pure roughstuff in the subsequent coats.

When the lead and roughstuff have had 48 hours to dry, the roof should next receive six heavy coats of pure roughstuff, applied at intervals of not less than 24 hours. If puttying is deemed necessary around the edges or elsewhere, this can be done between coats after the second coat of roughstuff, the putty to be made of dry white-lead and rubbing varnish, worked together until stiff, and then well pounded.

When the last coat of roughstuff has had two days to dry, the roof should then be stained with a mixture composed of lampblack and brown japan, thinned with turpentine, throwing also into the pot a handful of dry pulverized pumice-stone. Stir this well together, and rub it on evenly with an old stumpy brush.

The next day the roof may be pumiced, after which it should be left standing for 24 hours at least.

It should next be sandpapered off, and any little holes which may be present, can now be filled up with quick-drying putty, which can be sandpapered off the same day; the roof may then receive a coat of Piotrowski's Permanent Wood Filling (I use that), which should be rubbed off immediately after being put on, using first, second and third rags, until the latter show hardly any sign of moisture, and the roof presents a dry and polished surface.

It should then be left for a day or two, according to the temperature or season, after which interval the first coat of black, tempered with a little raw oil, can be applied. If the black is of good quality (Masury's, for instance), and it is coated with care, the roof can be made solid with two strong full coats of black color-and-varnish, over which a coat of pure rubbing varnish should next be placed, which completes the amount of stock necessary as a base to finish on.

The color-and-varnish and rubbing varnish, above mentioned, should have intervals of at least four or five days between applying and rubbing; and the last coat of rubbing varnish, which should be laid on heavily, will require at least a week before rubbing for a finish.

After standing a day for sweating, the roof may then receive a final rubbing; and, if finished with Harland's or Valentine's varnish, the painting of the roof will then be completed in accordance with the very best methods I am aware of.

As will be noticed, there is no difference in the process of painting a roof as compared with a coach body, with the exception of the manner in which the priming coat is treated. A roof demands and should have as much time for completion as would be necessary for the painting of the whole body, which requires a period of at least five weeks where first-class work is expected; but as the various rubbings, etc., involved in the painting of a body occupy less time on a part than the whole, and as your question is limited to the roof, I may state that the above time, reduced by about nine days, will be necessary to complete a thoroughly well-handled roof.

JAMES WARD.

NEW-YORK, July 1, 1884.

CURDLING OF COLOR.

TO THE EDITOR—DEAR SIR: A small quantity of Masury's drop black was left covered with turps a few months after being opened, and then part was taken out and thinned with turpentine; and, on a small quantity of raw oil being added, the color separated from the liquid and became a tough lump, like tar. What do you think was the cause?

Yours truly,

C.

ANSWER.—This is a case of curdling. After a lapse of several months, as our correspondent states, this prepared color, which at first was all right, turns out to be all wrong. We do not understand the case unless some foreign matter was introduced into it meanwhile. There is no color put upon the market that will not readily mix with raw oil. Benzine is one of the most common causes of curdling. Is our friend sure that he did not cover his color with benzine instead of turpentine? Pure turpentine over the color positively would not cause the result mentioned, and neither would the addition of pure raw oil.

L.

A CASE OF BLISTERING.

TO THE EDITOR—DEAR SIR: A wagon body was run outside of the shop and left exposed to the heat of the sun for several hours, a week after it had received the last coat of varnish. During the time it was outside, the paint rose in blisters. What was the cause?

C.

ANSWER.—This is an ordinary case of blistering, caused by excessive sun-heat; and if our friend should examine carefully into the details of the painting, he would, no doubt, find that some of the under-coats were not thoroughly dry, which would, of course, increase the trouble. We know of no reason why a wagon should blister a week after it had been finished, as in this case, except through the cause we have just mentioned.

L.

HOW TO PREPARE SCORCHED OR GREASY WOOD FOR PAINTING.

MR. EDITOR: Will you kindly give me a remedy for the following trouble, namely: When ironing carriages the blacksmith sometimes singes or scorches parts of the wood, such as rims, axle-beds, etc., and when varnishing such parts, the paint sometimes rubs off the wood.

C.

ANSWER.—This trouble is a very common one. The blacksmith, as a rule, is somewhat like the oyster, in respect to living in a shell of his own, caring little or nothing for what the painter may have to contend with. Hence, the work too often leaves his hands either burned, scorched, or covered with oil spots; and such injured portions are often very difficult to paint over, unless the painter previously takes some pains to remedy the defects.

In the case of scorched portions, the trouble arises not so much from the burning of the wood as the greasy smoke that covers the surface, and prevents the paint put over it from properly drying. To remedy this, first sandpaper down and then apply a coat of thin shellac over all scorched portions. The same remedy will be found equally effective in case of grease-spots.

L.

PARTICULARS REGARDING USE OF JAPAN BROWNS AND GREENS.

EDITOR OF THE HUB—DEAR SIR: In the May *Hub* I notice a receipt given for producing japan browns and greens.

(1.) Now, I wish to ask the editor of your Painting Department if japan brown can be finished with elastic carriage or one-coat varnish, without first laying on rubbing varnish?

(2.) If so, must the japan brown be rubbed with pumice-dust before the finishing coat is laid on?

(3.) Also, should rubbing-varnish on gears always be rubbed?

(4.) And, lastly, what brush is best adapted for laying on japan browns and greens?

By answering the above four questions you will greatly oblige a young painter, but old friend of *The Hub*.

M., of Guildhall, Vt.

ANSWERS.—(1.) It is not absolutely necessary to introduce a coat of rubbing varnish over japan brown or green before finishing; but work that has rubbing varnish on, will thereby produce a better result, by bearing out fuller and richer.

(2.) In all cases, each coat of japan brown or green should be lightly flatted down before being varnished over, care being taken not to "strip" or cut through the coat.

(3.) Rubbing varnish, on either bodies or gears, should always be rubbed before being re-varnished. It is customary, however, on first coats of color-and-varnish on gears, to moss them down with curled hair or moss; but this method is only used for first coats.

(4.) The best brush for japan browns and greens is the flat badger-hair; some use fitch, and others the flat bristle; but, to our mind, the badger is preferable, owing to the combination of softness and elasticity which it possesses.

POPULAR COLORS FOR PAINTING.

EDITOR OF HUB—DEAR SIR: I am getting up a nice canopy-top phaeton, and should like to know what is now the most stylish color for painting up such jobs?

W. K. MENDENHALL, Houston, Tex.

ANSWER.—Our correspondent will learn full particulars by studying the following articles which appeared in recent issues of *The Hub*, namely: "Present Styles of Painting Light Work," April, 1884; and "Present Styles of Painting Medium and Heavy Work," May, 1884.

WHAT IS THE FAVORITE LEAD?

TO THE EDITOR: Please let me know what make of white-lead is preferred by the New-York carriage painters, and what Brewster & Co. use?

C. T.

ANSWER.—The two favorites in New-York and vicinity are the Atlantic and Jewett's. Brewster & Co., we understand, prefer the Atlantic, but they use very little lead. Both of the above brands are first-class, and we have no doubt that there are many others which are strictly pure.

RAW HIDE AS A FOUNDATION FOR COACH PAINTING.

DUNEDIN, NEW-ZEALAND, Feb. 29, 1884.

EDITOR OF THE HUB—DEAR SIR: I have been looking through all *The Hub's* I have, for some information on the putting on of raw hides on broughams, etc., but I cannot find any. Could you refer me to any number containing it, or inform me through *The Hub*. I would like to know the sort of hide, state of hide, and a few hints on manipulating it.

Hoping that *The Hub* is in full swing, with a brighter outlook than ever,
I remain yours very truly, D. S.

ANSWER.—To cover the roof, quarters and back of a brougham body with raw hide in one piece, proceed as follows: The raw hide (cow-hide), nowadays split, but formerly shaved down, is curried to the thickness of stout shoe-leather. Immerse this in clear cold water until thoroughly soaked. Then apply flour paste to the roof, quarters and back, putting it on as evenly as possible, particularly avoiding lumps. Then place the hide over the roof, quarters and back, the grain or hair side out; and commence slicking it out with a glass, stone or steel "slicker." Commence slicking at the center of the roof, working gradually to the edges. Then slick down the front end top-rail, and point in a few tacks temporarily to hold it in place. Next, commence with the quarters and back, working all the leather that is possible out at the standing-pillars; and then working any fullness that may appear on the back into an even surface, at the same time slicking it down. Again point in tacks at the edges of the arm-rail, standing-pillars and back cross-rail. Then look over the entire surface, and work out any more fullness that is possible. Then drive in the tacks about half way. In the course of the day, while the leather is drying and shrinking, it may be necessary to ease the great strain that may result. As soon as the leather is thoroughly dry, the tacks may be driven home, care being taken to so place the tacks as to be finally covered by the brass molding. Then cut away the superfluous leather. The job is now ready for painting.

Unless the trimmer has had experience in doing such work, it is preferable to call in a professional currier for applying such hides.

In preparing the hide, before it is put on, it is important that the grease should be thoroughly removed, together with any unevenness of the flesh side. Before painting, it is also the common practice to apply a priming specially intended to kill any grease that may possibly remain in the hide.

Such raw hides form the best possible foundation for painting, when well prepared and perfectly applied; but the job is very delicate and very expensive, and is never used in America, and has for some years past been gradually going out of use in England and France. J. D. G.

SOME QUESTIONS ABOUT KEG-LEAD, TURPENTINE AND JAPAN.

EDITOR OF THE HUB—DEAR SIR: My paint-book, in speaking of white-lead, says "take keg-lead." Now, will dry white-lead, ground in raw oil, be as good as keg-lead, or not?

(2.) Is turpentine that is sold by country drug stores good for painting or not? If not, how may I tell the difference, and where can I get the right kind by five-gallon lots?

(3.) My book says "use brown japan." Where can I get it? My paint-store man has japan from 75 cts. to \$1.75. He doesn't seem to know what it is. Is Valentine's Crown Coach Japan the stuff, or not?

M. L. CHUNN, Coldwater, Ky.

ANSWERS.—(1.) Dry white-lead, ground in raw oil, will make a very good pigment; but it is not a full substitute for keg-lead, and it costs considerably more. We don't know all the details of the manufacture of keg-lead; and, if we did, they would be of little value to our correspondent, for all he has to do is to buy his keg-lead from any reputable manufacturer. The practical difference between the two is this: The dry lead mixed in oil does not possess the weight, body or filling properties of the keg-lead, and is consequently not so well adapted for carriage work, except in making putty, and in making light striping colors.

(2.) There are many grades of turpentine in the market: good, bad and indifferent. You want the best, and the only way you can be sure to get the best is to buy of some thoroughly reputable supply house, such as C. T. Reynolds & Co., of New-York, or forty others, some of whose names you will discover in our advertising pages.

(3.) Like turpentine, there are also all grades of brown japan in the market, but the one you require is the best. "Crown Coach" is a coach-maker's japan of the best grade. L.

VARNISH DEVILS EXORCIZED.

"THE days of trouble with varnish have gone by, and in a city varnish-room there is seldom any cause for doing a job over. Sometimes a fly or moth miller will traverse over a quarter panel, necessitating re-varnishing, but that can't be avoided. With good varnish and tools, and a confident workman, deviltries will not occur."—Coach, Harness and Saddlery.

TEMPERATURE OF VARNISH-ROOMS.

TO THE EDITOR—DEAR SIR: What is *The Hub's* opinion as to the best temperature for a varnishing-room? D. E. N.

ANSWER.—From 75 to 80° Fah. is about proper temperature, but 75° is our own preference; and the air should be dry, and the ventilation perfect.

We are glad to notice a growing interest in this subject, for very few varnish shops to-day, which attain to the best results, are without one or more ventilators and one good thermometer, the latter being the "steam-gauge" of the varnish-room, which no varnisher should attempt to get along without. L.

SINKING OF VARNISH.

TO THE EDITOR—DEAR SIR: I have been troubled this summer, particularly during the hottest days and nights, with my Harland's finishing varnish sinking in and growing dull. Where, please, is the cause of this, and how can I avoid it? T. S. H.

ANSWER.—Without being at all personal or referring to any particular grade of finishing varnish, we would say generally that all high-grade varnishes are liable to be affected in this way during June, July and August. Sometimes this result is due to soft under-coats. Sometimes the last coat of rubbing varnish is cut too closely, allowing the finishing coat to sink through. Generally, however, this deviltry can be traced back to wet or damp floors, and improper ventilation.

To remedy this, keep your varnish-room floor clean, and as dry as possible, and ventilate your room by double or triple wire screens at both the top and bottom of one or more of your windows.

In case the sinking in is well developed, it is usually necessary to rub down the finishing coat, and re-varnish.

It is claimed by some that American varnishes are not, as a rule, so easily affected in this way as the English; and such has been the writer's experience. It might, therefore, be well to try some American varnish as a temporary substitute for the English, in case the trouble you name becomes at all serious. L.

FLIES IN THE VARNISH-ROOM.

TIMELY SUGGESTIONS FOR THE MONTH OF AUGUST.

CAN you drive them out? Oh, yes, certainly! That's easy enough! Cut some narrow strips of paper, say thirty inches long, and fasten to the end of a stick (everybody knows how to make "fly-drivers"). Have a number of these on hand, and just before you wish to varnish, call in the boys, give one to each, open the big door, and go for them! Work lively, and all you do not drive out, you will frighten to death, which will answer as well. After wasting so much time, you will be anxious to get to varnishing, and can now proceed. Your work will undoubtedly be free from flies, if not from dust. The above is a sure way of driving them out, while the following will prove an effectual way of coaxing them out,—and persuasion is usually better than force.

Have a number of holes cut through the partition or wall of your varnish-room, say two to four inches in diameter, with a closely-fitting lid or sliding cover arranged in any way most convenient for the purpose. Have curtains at the windows, so that the room can be darkened. When you are ready, lower the curtains, open two or three of the covers over the holes in different parts of the room, and watch the result. After ten minutes or so, close the holes, and raise the curtains, making the room again light. There are still a few flies left. Now repeat the operation, making all dark again. Open the holes as before, and watch again. Should the wall be thick, have the covers on the inside so that the flies will not have to travel through a hallway before reaching the outer room. In this case they will fly out, while in the other they will lazily crawl out. It may be necessary to administer three doses of daylight and darkness, but usually two are sufficient.

The reason for darkening the room again is, that the flies will naturally think that night has suddenly come on and many of them will retire. Give them more light, and when darkness comes again they will evacuate. While the room is in darkness they will not return, and it is well to keep the holes open long enough to give the few that may possibly remain a fair chance. Should you find on entering the room a few stray ones, you can rest assured that they are blind and can easily be captured.

Improved fly-traps, liquid or paste poison preparations, or prepared "stick 'em" paper, gather in a few accidentally; and panels hung around the room, coated with varnish or any sticky substance of like nature, seem to repel rather than attract them. A nicely-finished surface on a fine carriage is good enough for them.—Coach Painter.

A FLY is said to have 16,000 eyes. No wonder he is careless where he leaves his specs.



A BELATED TRIMMING ESSAY RECEIVES AN EXTRA PRIZE.

SHORTLY after the recent distribution of our *Hub* Prizes for drawings and essays, as reported in the June number, we received the following illustrated article from a New-England trimmer, whose name we withhold at his special request. With it came a letter explaining that the writer had specially prepared it for entrance in competition for our prizes, but that circumstances beyond his control had prevented him from completing it in time for that competition, and he therefore asked to be allowed, in case we should find it acceptable for publication, to present it to *The Hub* with his compliments.

A careful examination of this essay leads us to believe that it would very probably have succeeded in at least winning the second prize in its class (which the jury withdrew) except for the unfortunate delay referred to; and feeling desirous to give our New-England correspondent the full benefit of this doubt, we proffered him a special additional award of \$15, equal to the cash amount named in our original offer as the second prize in his class. This offer he has accepted very cheerfully; and we feel confident that no one will begrudge him this extra reward after reading his carefully prepared paper, accompanied by pen-and-ink drawings, the first half of which we publish immediately below.

BELATED PRIZE DESIGN FOR TRIMMING A PHYSICIANS' PHAETON.

BY "ANONYMOUS," OF NEW-ENGLAND.

[Awarded a Special Prize of \$15. See Editorial immediately preceding.]

A VEHICLE specially designed for the use of physicians needs to combine, in its construction throughout, the most comfortable and the most durable qualities, as the professional services of the owner are called for at all hours and in all sorts of weather. It should also present and retain as neat and creditable an appearance as possible, and it should be the aim of the trimmer to introduce such materials and design and mode of execution, as best combine neatness with comfort and durability.

At the present time, the prevailing trimming materials for this class of vehicles are goatskin, cloth, and enameled leather, and the prevailing colors are green and maroon. If always subjected to an even temperature and not exposed to the sun, leather or goatskin would doubtless prove the most serviceable material; but, being frequently exposed to extremes of cold or heat, either of these materials is liable to crack by the cold, to lose its color and luster by the sun, and shrivel by the heat, and thus soon present a shabby appearance. Of all the trimming materials that have been in use for this class of work, cloth, in my judgment, has proved the best.

Tufted upholstery in cloth material is exceptionally difficult to keep clean; and when tufted in large squares, which has been the common practice for this class of work, it soon loses its shape and symmetry. These squares, particularly in the backs, which are drawn over springs, are given considerable fullness in order to obtain the desired regularity of the plaiting, and consequently there is more material to wrinkle and displace. Any new design of trimming appropriate and serviceable for Physicians' Phaetons, to which the material would be well adapted, and which would present a neat and elegant appearance, preserve its symmetry, and offer the least difficulty in the way of keeping free from dust, would doubtless find favor with a large class of customers; and with these purposes in view, I beg to present the following design of trimming, which is entirely plain, and made without any tufts.

To be in the prevailing fashion, and in harmony with the painting and striping of the body and gearing, let the material be green cloth; and let the entire quantity required for the job be taken from one piece only, so that if any fading of the color takes place it will all change alike. It has been a common custom to substitute a lighter weight, and, not un-

frequently, an inferior grade of cloth for the head-lining. Although this may at first present exactly the same shade of color as the rest, it will, as a rule, soon change and present a marked difference, one presenting a bluish appearance or another yellowish; and such use of varied materials is consequently not advisable. It is claimed for the Wülfing cloths that an indiscriminate selection may be made from any number of pieces, and that it will all change alike; but the truth of this I am not prepared to vouch for.

In a Physicians' Phaeton coach lace is not serviceable, owing to its great exposure, and it is therefore omitted in this design, and cloth welting is substituted wherever it seems necessary.

Collar-leather welting is commonly used in this class of work, but is not suitable for this particular design, as it would mar the intended effect, and present an ordinary and cheap appearance.

To illustrate the application of this design of plain trimming, as suggested in the accompanying sketches, I have selected for the purpose a four-bow close top. The outlines of the body are also given, merely for the sake of aiding in the illustrations; but I trust that the chief outlines and measurements will be found sufficiently accurate to answer the purpose for which they are intended.

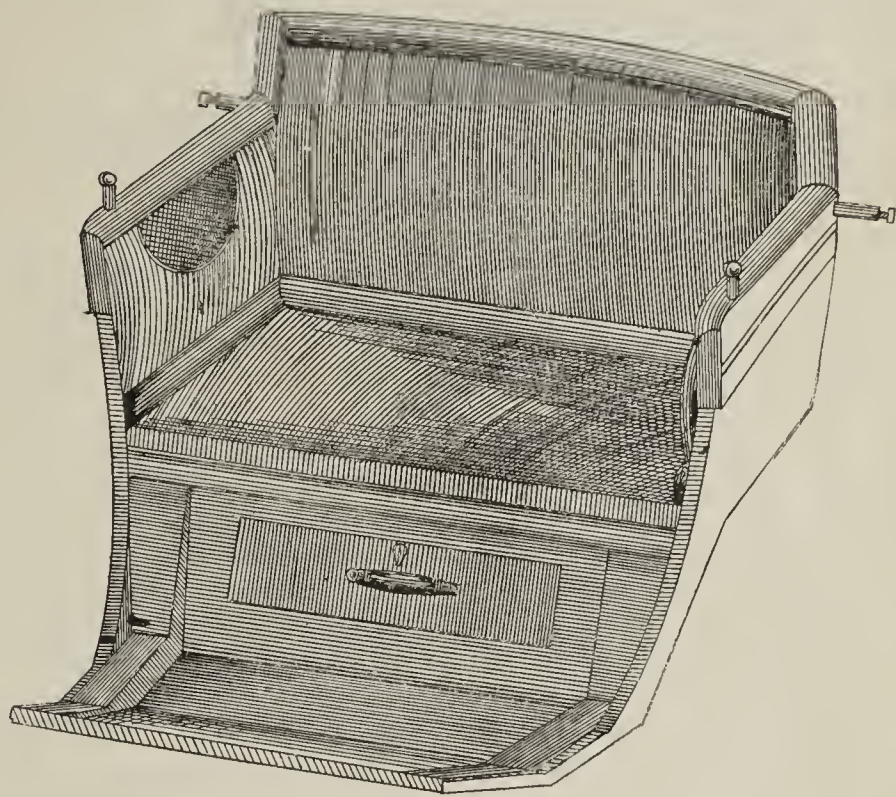


Fig. 1.

The inclined elevation, Fig. 1, shows the general effect of the whole body-trimming when viewed from an angle, at the most advantageous point. A high back provided with springs is here shown. In order to relieve the plainness and give effect to the large surface, plain rolls, two inches wide, are inserted both at the top and bottom of this back, above the height of the cushion. The roll at the top continues down the sides until it reaches a corresponding roll at the top, and runs the entire length of the arm-block. To carry out the design, the roll at the bottom of the back is also continued and joined to a corresponding roll at the side-quarters. Between these rolls, at the side-quarters, a pocket is introduced.

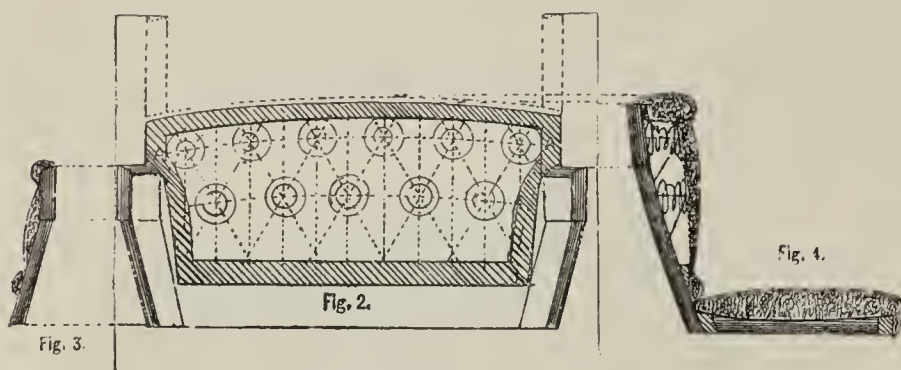
The cushion consists of a wooden frame with webbing drawn over the surface. The front of this frame is also provided with a roll, and corresponds with those at the sides and at the top and bottom of the back. The necessary upholstery on the surface of this frame at the front does not recede, as is usually the case, but presents an acute projecting angle. For finish and further effect, round cloth welting is inserted on each edge of these rolls.

Phaetons specially designed for physicians are usually provided with one or two drawers under the seat for the purpose of carrying instruments. In this design only one large drawer is provided, which, I think, will better accommodate instruments or other objects than if the space were divided. For finishing the front of this drawer a thin piece of wood (paneling) is glued over the entire front surface, and this projects $\frac{3}{8}$ inch over the edges, in order to well cover the crevice of the opening. This projection should be rounded off, and the cloth covering should be pasted smoothly over the whole surface, and be tacked close to the underside of the projection and not interfere with the runs. If provided with a lock, the key-plate should be screwed on, after covering, to its required place; and a leather-covered pull-handle may be added at the center. The remainder of the heel-board is also covered plain, previously laying under a thickness of sheet cotton, the cloth material to be of one piece, and of ample size to extend over the edge of the seat-board. The welt at the bottom of the cushion frame provides the necessary finish at that point. A close and neat finish must be made around the edges of the opening for the drawer.

A piece of brass molding, fitted and covered with cloth, will insure a neat finish in the corners, at the junction with the rocker coverings.

The foundation of these rocker coverings should be of split leather, covered with heavy collar-leather, and should extend to the top edge of the seat, the covering extending under the cushion. Plain carpet, with the edges blind-bound with cloth, is appropriate to this design.

Phaetons of this character commonly have considerable slope to the back, and the back in this design has a slope of six inches from a vertical line. It is therefore necessary that the upholstery of this back should be thicker at the top than at the bottom, in order to reduce this excessive incline. To accomplish this, and also to produce an exceptionally easy and comfortable back support, a row of spiral pillow-springs is inserted along the top edge of the back and another below at the swell. The number and position of these springs are indicated by Fig. 2.



A strip of round rattan is lashed along the top edge and outer coil of these springs, turning the corner and stopping at the coil of the end spring, as indicated by A. The method of tying and securing these springs, and building up square edges of upholstery, has been so fully and recently described in *The Hub* that I refrain from giving further directions.

One of the chief obstacles to the introduction of plain upholstery in carriages is the presence of the paneling, a disadvantage which the furniture upholsterer does not have to contend with, the parts of whose work are open and can be reached from both sides, which proves of great advantage in the attempt to bridle and quilt the stuffing, hold it in its proper place, and produce that accurate shape and symmetry which forms the all-important feature in such plain upholstery. In order to overcome this difficulty, a wooden frame is here introduced, which must be fitted to the shape and sweep of the body. This frame must be of sufficient strength to withstand the strain and tension of the trimming materials. The size, shape and position of the frame are indicated by the diagonal shaded portion in Fig. 2. The frame is secured to the body by screws, so that it can be readily removed. The whole back upholstery can thus be made at the bench, and it can be reached from both sides in the quilting. The outside edges of the rolls are to be left open, in order to again secure the frame in its intended place, and then these are closed up. At the underside of this frame, broad webbing is drawn at the required places to secure the springs, and the openings between these strips of webbing will be found of special advantage in quilting and shaping the upholstery.

It will be seen that the top row of springs is located a certain distance below the top edge of the back rail and also at the ends. This distance forms the width of the roll, which is illustrated further in the sectional elevation of the back and cushion, Fig. 4. In this figure the height of the springs and the shape and thickness of the upholstery and rolls are all shown, and also the frame, the latter being indicated by the diagonal shading.

The top of this back upholstery is built up square, forming a sharp and acute corner whereon to blind-sew the welting and roll. The thickness of the rattan and welting brings it somewhat above the height intended for the purpose of giving the proper width of the roll, as this, when stuffed, will project to this extent above the back-rail. This built-up edge of stuffing is also reproduced at the sides (the welting and roll to be stopped at the junction of the arm-roll), but is entirely omitted at the bottom in order to avoid encroaching upon the seat-room. The material and welting at the bottom can therefore be blind-tacked direct to the frame, and the rolls closed up after the frame is secured to the body.

The elevation of the cushion shows the shape and thickness of the upholstery, which is also built up square at the sides, but forms a projecting angle at the front. The thickness of this frame is also shown by the diagonal shading.

On the surface of this frame, broad webbing is drawn closely across and lengthwise, the strips interlacing each other; and the stuffing is built upon this. Owing to the strain brought upon this frame, a brace is required in the center to prevent its springing; and to avoid any interference with the webbed surface by sinkage, it requires to be concaved.

This webbed surface and the built-up edges of stuffing at the front and sides of the cushion, and also at the top and sides of the back, answer

the double purpose of giving form and symmetry to the work, and also of increasing and distributing an elastic power over the whole surface of the upholstery. They also prevent persons, when seated, from coming in contact with or resting upon a hard or inelastic substance.

The vacuum underneath this webbed surface of the cushion, on each side of the center brace, will form a receptacle of sufficient capacity to hold the dash-apron and blanket. The notch required in the frame to fit over the goose-neck prop is sufficient to hold the cushion in its place.

Fig. 3 is a sectional elevation of the side quarter, and shows the thickness of the rolls and center upholstery. The space between these rolls is so narrow that no quilting is necessary and no separate frame required. The inside top edge of the arm-block is rounded off to prevent danger of the trimming materials drawing over any sharp corners. The goose-neck prop would form a projection at the bottom roll, and this will therefore require leveling up with blocking on each side of the prop, to insure a straight and unbroken line of the roll and welting. The pocket between these rolls is to be blind-bound with cloth.

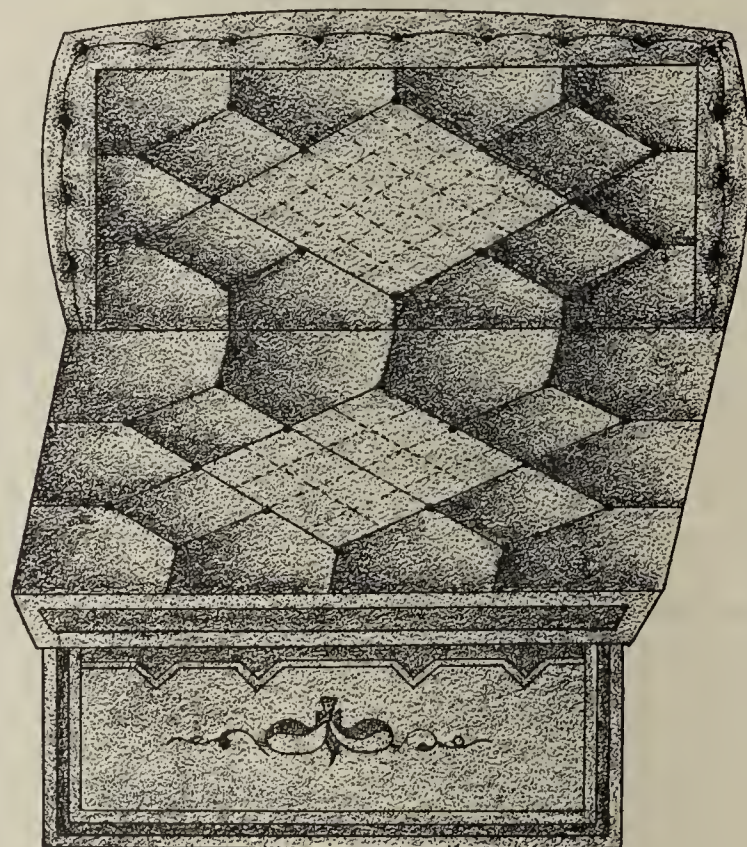
I candidly believe that a Physicians' Phaeton of this design, trimmed with the materials above described, and neatly and thoroughly executed, would prove rich in appearance, comfortable and durable. I have noticed one trimmed after a somewhat similar design, and I was struck with the admirable effect produced by its simplicity and harmony. It seemed to me superior to any tufted design. However, as various tastes prevail, and the sameness of the materials I have suggested might not suit all, a harmonious combination of contrasting colors might be here introduced, if preferred. For instance, a pleasing effect might be obtained by inserting a proper shade of gray or drab cloth for the welting, rolls and binding. Any shade of gray would harmonize well with maroon trimming.

I will now proceed to describe and illustrate the top.

(To be continued.)

TRIMMING DESIGN FOR SHIFTING-RAIL WORK.

THE accompanying trimming design is suitable for any kind of job where shifting-rails are used.



For the rough lining, I use buckram, pasted together, of sufficient thickness to make a stiff foundation. A coat of slush paint will exclude dampness, and add to its wearing qualities.

Shape the back to fit the seat, and lay off as per design, with four small diamonds forming one large diamond in the center. The large diamond may be finished in a variety of ways, by stitching with colored silks a scroll or a fancy letter, or quilted as shown in design. The small diamonds are formed by the cloth being folded and stitched $\frac{1}{8}$ inch from the edge, forming a little cord, which is generally called "stitch plait work." For fullness allow $\frac{3}{8}$ inch each way, and one inch around the edges to sew down.

The roll has its width for fullness, with an additional inch across the top to tack on the lazy-back. Draw in the button tufts before stuffing up the roll, and draw the roll tight lengthwise. Stuff up soft, and it will give the appearance of a double roll.

Make up the body of the back in white muslin, smooth. The cloth having been stitched, then line with sheet cotton, and draw over smooth, but not too tight, as that would warp the back. Draw in the buttons, sinking them just below the surface. Finish the edges of the back with round and flat welts.

In the cushion, the same design is carried out as in the back, except leaving off the roll. The cloth is cut with the same fullness as the back, and the plaits are formed by stitching $\frac{1}{4}$ inch from the edges, the same as in the back. Cut the fullness out of the corners by rounding them a little, the same as if a plain or smooth top were to be made. For the stiffening of the front facing, we paste together three ply of buckram and two of paper, which makes a firm and stiff foundation, that will stand up and keep its shape. The paper received around such goods can be put to good use in this way, and it will also aid in stiffening the backs. Paste out strips of sufficient length to accommodate all your seats; tack them out on a board, and let them dry thoroughly, as they will warp and kink if used while wet. Keep a supply ahead, as they dry slowly, and then you can always cut off strips as you need them. For a $2\frac{1}{2}$ inch cushion facing, I cut the stiffening $1\frac{5}{8}$ inch wide. This leaves a pliable edge to sew to, and lets the cord turn out square. For the end and back facings we use no stiffening, merely pasting the cloth on top-leather; or if for a leather cushion, paste white muslin on leather.

A cushion with soft end and back facings will fit better to the seat; but for stick seats I paste my facings out on a stiff foundation, as soft facings will bulge out between the sticks. Stuff the cushion up soft, and tuft down with the button tufts to match your cloth.

The fall is pasted out on No. 2 top-leather, with three raisers around the edges, and a small scroll in the center. The valance is raised on the fall, and is sewed in with the cushion.

C. G. COOK.

KENTON, OHIO.



TRADE GOSSIP OF THE PAST MONTH.

OUR recent reviews of the topic "How's Trade?" have evidently been well read and much appreciated. Bulletin No. I, presented in the June *Hub*, contained detailed reports freshly gathered from one hundred and twenty-seven manufacturers and dealers engaged in the supply of carriage materials; and Bulletin No. II, in our last number, presented two hundred similar reports, received from the carriage manufacturers themselves. In the present number we present Bulletin No. III, which briefly reviews the subject "How's Trade Abroad?" the indirect effects of which are likely to be felt in this country, sooner or later, and the question therefore deserves attention by the trade here.

* * *

THE true condition of the carriage business last spring may or may not be debatable, but the fact that trade was very dull last month is generally conceded, and there seems every reason to expect that this condition will remain until the opening of the fall season. Well, this is not so unusual at this time of year that it ought alone to cause special uneasiness. We have had occasion to report dull summers in the past. Indeed, we do not recall many summers that could be truthfully reported otherwise. Presidential elections and demoralized Wall-street are looked upon by some as the particular black sheep in this case, but we hardly think them as black as they are painted.

* * *

HOWEVER trifling an editor may regard the unfavorable comments of his contemporaries, he seems always to derive a certain degree of satisfaction from their occasional compliments,—possibly all the more so by reason of the infrequency of such experiences. *The Hub*, for instance, is glad to acknowledge the friendly recognition contained in the following extract from a letter received on July 12th, from Mr. H. A. Doty, editor of the *Coach Painter*: "Allow me to compliment you on the handsome appearance of the last *Hub*, which is lavish in plates, and in every way such a journal as we like to see in the trade."

* * *

THE July meeting of the National Democratic Convention in Chicago resembled that of the Republicans in many particulars; there was white-heat excitement in Chicago, though of an orderly sort, which radiated with more or less fervor to every city hotel,

town-hall and village church in the country; there was a vast expenditure of eloquence, applause and gunpowder; there were two estimable gentlemen nominated for candidacy at the approaching Presidential election; there were those who honestly thought the choice the best that could have been made, and others who just as honestly thought it the worst possible; and, during all the accompanying turmoil and distraction of the public mind from routine business duties, there was experienced an increased depression in business generally, which, justly or unjustly, was imputed in part to the confusion usually attendant on the "off" or Presidential year. Both tickets have their ardent admirers and their equally emphatic disapprovers; but everybody knows that, whichever is elected at the contest on November 4th next, the Government and the people will soon settle down to work again, pretty much the same as if nothing had happened. Those who prefer to walk the floor meanwhile are at perfect liberty to do so; but we see no possible reason why members of the carriage and accessory trades should be compelled to, and we hope they won't. Whether Republican or Democrat—and we defy any reader to make out a case against *The Hub* on the above testimony—we are all equally interested to have the pot kept boiling until the political goose is well cooked, and to have it stopped as soon afterward as possible.

* * *

IN our last number we referred in complimentary terms to the recent lecture by Mr. Henry Julian, of Bolton, England, on the subject of "Art Applied to Coach Building." In a letter since received from Mr. Julian, he says: "It gives me much gratification to know that you were pleased with my lecture. The subject is a congenial one to me, and, I think an important one to the trade. Unfortunately, cheapness and not beauty is the main consideration with many,—indeed, I may say with the majority. Those who meet this requirement seem at present to get the largest amount of patronage, and this will be the case till our patrons also understand the principles of art. The efforts that are being made in this direction in Great Britain are succeeding beyond what any one would have thought possible twenty years ago. With the advance of education, taste must increase, and the successful coach-builder of the future will be he who treats his work most artistically. I am glad to find that you too, on your side of the water, are quite as much alive to the importance of art education, and, through your journal and art classes, are striving to make your carriages—what all carriages should be!—objects of art. If my lecture will in any way lead to this end, it will give me much pleasure." At the suggestion of Prof. Gribbon, an arrangement has been made with Mr. Julian whereby printed copies of the text of his lecture will be presented to all pupils of the Technical School in New-York, and the Corresponding Classes connected therewith.

* * *

OUR contemporary, *Coach, Harness and Saddlery*, in its issue dated July 12th, revives an old but praiseworthy suggestion that some kind of a life insurance plan should be organized among the members of the Carriage Builders' National Association; and it offers several valuable suggestions on the subject. We think it very likely that some such plan could be adopted advantageously, but there are many preliminary steps that would need first to be taken, and we are therefore glad that the subject has again been opened. *C., H. and S.* suggests that it be styled The Mutual Benefit Alliance of the Carriage Builders' National Association, that the membership be confined to Active and Honorary Members (we presume the writer means Associate-Honorary Members), that a permanent fund be raised by subscription, and that a board of seven trustees be annually elected, quite distinct from the officers of the Association, and that no executive officer of the Association be eligible to trusteeship. The best organization of this character with which we are acquainted is that existing among the members of the New-York Stock Exchange, whose printed Constitution and By-Laws we commend to the careful study of *C., H. and S.* In that instance there is no permanent fund, and no previous medical examination is required, but a certain assessment is levied on all members of the Exchange upon the decease of any member in good standing, and the sum thus raised is presented as a gift to the widow or legal heirs, and under such conditions that creditors can have no claim to any part of it. In an Association like that of the carriage-builders, where ages and degrees of health are so varied, it would seem only proper that a physician's certificate of

good health should be required, and that the amount of the annual assessments should depend in some degree upon age. If the editor of *C., H. and S.* could devise a plan of procedure which should commend itself to the judgment of members as just and practicable, we think it would meet with favor and prove a desirable adjunct to the Association's work.

* * *

THE total number of failures in the United States reported to *Bradstreet's* during the first six months of the present year is 5,444, against 5,296 in the first half of 1883, 3,649 in 1882, 3,256 in 1881, 2,399 in 1880, and 3,810 in 1879; and, when the exceptional financial difficulties of the past quarter are considered, it seems to us that this numerical showing is rather more favorable than we had reason to expect. Carriage-builders and dealers appear to have been particularly successful in escaping this "black list," and we trust they may continue to be conspicuous by their absence. According to *Bradstreet's*, the average percentage of assets to liabilities in the various groups of States shows a substantial improvement over the corresponding period in 1883. The Eastern States appear to have suffered most, the ability to pay indebtedness on the part of those failing there having declined from assets equal to 46 per cent. of their liabilities last year (six months) to 40 per cent. this year. The middle States show an increase from 47 per cent. in 1883 (six months) to 56 per cent., and the Southern from 47 to 53 per cent. The Western States have not varied much, the ratio last year being 70 and this 69 per cent. The Pacific States climbed from 48 to 64 per cent., a very cheering gain, and the territories from 55 last to 79 per cent. this year. The average for the country also is higher, the proportion of assets to liabilities in the first half of last year being but 54 as against 56 per cent. in the first half of this.

* * *

WE mentioned in our last number (page 265) a peculiarly attractive advertising card which we had received from Mr. Frederick W. Lucas, coach-builder, of London, England. We have since received from the Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich., a rival advertisement in the same general line, whose novelty and brilliancy have quite taken our breath away. Surely, nowhere but in the Great American West could such an advertisement have been devised! And quite as certainly, no one but this same A., T. & W. Mfg. Co. would have had the ingenuity to conceive of it! It is true that their rather long-tailed kite of a corporate title requires somewhat more advertising than common, in order that the public may become sufficiently familiar with it to pronounce it in one breath; but the name of their pet product, the "Jackson Wagon," is not likely to be soon forgotten by any person who once gazes upon this surprising advertisement. What does it look like? Well, it consists of a most startlingly brilliant lithograph, 28 x 21 inches, showing a red and yellow village at the bottom, with roofs partly concealed by congregations of spectators, who gaze upward at an enormous red and yellow balloon (actual length in lithograph, 19 inches), bearing, instead of the usual car, a three-eighths-inch "Jackson Wagon," elaborately painted and ornamented in its true colors. The Gulliver character of this audacious design is sufficiently remarkable, but we are treated to an added surprise when we read the accompanying inscription, to this effect: "Grand Balloon Ascension made by Prof. E. D. Hogan, in his Mammoth Air-ship called the 'Light-Running Jackson Wagon,' at Jackson, Mich., April 18th, 1884, taking up with him a Full-sized Jackson Wagon,—the Most Wonderful and Daring Feat ever accomplished by any Aeronaut on the Face of the Globe." Well, we should say so!

* * *

LAST month's *Carriage Monthly* contains a review of *The Hub's* Presidential Ballot as presented in our June number, and addresses to us a number of questions. The editor of that journal is not entirely satisfied with our ballot. However, he is no more bound to be pleased, than we are to please him, so it is "quits" thus far. We also claim equal right to decline answering his questions, that he has to ask them, and we willingly give our reasons. The object of our so-called "Presidential Ballot," or the general inquiry of which this forms a part, is not to gather support for any opinion of our own, but to learn, as far as possible, the opinions of the members of the Association. We hope to accomplish something in this direction before we get through. It is possible that our

monthly reviews of the question may even assist the *Carriage Monthly* to formulate opinions of its own. But whatever the result may be, it cannot well disappoint us, for we desire solely to learn the true inwardness, good or bad, of the present situation. Our ballot has suggested some facts, while the letters to appear in our next number will contain still more; and whether the ballot and accompanying correspondence be large or small, or congratulatory or otherwise, is a matter of perfect indifference to us, so long as it embraces frank expressions of opinion by all who have anything to say. In the meantime we have only to repeat for the benefit of the *Carriage Monthly*, the suggestions which we offered last month to Mr. J. C. Cooper, of London, namely: Whenever one feels tempted to indulge in facts and figures, it is a good general rule to have the said facts and figures as nearly correct as the case admits of. But how, on the other hand, can the *Carriage Monthly* expect its editorials to carry any weight when, as in its July number (page 107), it proceeds with solemnity to base certain arguments on the statement that there are "now of Active Members in the Western States, 132, and 198 in the Atlantic States" (total, 330); and when, meanwhile, there is any chance that the reader may have a copy of the Association's last annual report at his elbow. Both these figures are incorrect, providing the official report can be deemed authority, for here we find that the total Active Membership is 312, including 120 Western, 191 Eastern, and 1 Canadian. The figures named may or may not have correctly represented the relative membership at some previous period of the Association's history, but they were not correct at the close of the convention in October last, and they were not correct at the time of their appearance in last December's *Carriage Monthly*, as might easily have been ascertained by applying to the Secretary; and to repeat them now, several months after the publication of the official data in the annual report of the Association, seems inexcusable. The further statements made by the *Carriage Monthly* may or may not be founded on fact, and the conclusions it bases upon them may or may not be wise (we gladly admit that some of them appear just), but we beg to be excused from entering into any serious argument regarding views supported by such careless statistical evidence, particularly when our individual views, and those of our contemporaries, have so little bearing upon the topics under consideration. The work we have undertaken in connection with our informal ballot, wise or unwise, is simply to learn the opinions of members how the work and influence of the Association can be widened and improved, and to place such opinions of the members on record.

OPEN BALLOT FOR NEXT PRESIDENT OF THE C. B. N. A.

PAPER NO. IV.

OUR informal Presidential ballot has now been open for four months, and every member of the Carriage Builders' Association, Honorary as well as Active, has been given an opportunity to cast a ballot or express his opinions, pro or con, regarding the past and present management of the Association's affairs. What are the results thus far? Our second bulletin of the vote, as published last month (page 267), showed that 153 ballots had been cast up to June 20th, including 106 that were positive in character and 47 indecisive. Since that time only five additional votes have been received, and these do not alter the general result, but merely strengthen the position of the favorite candidates then named. It would seem as if this orange had been squeezed for all it is worth. What now have we got out of it?

In the first place, we will refer to the apparently small number of votes reported last month (153), as compared with the actual membership of the Association, which includes, at present, 312 Active, and 311 Associate Honorary Members, besides 39 Life Members. The last-named class were not invited to vote. [Please notice, by the way, that the Active and Associate Members are now equally balanced numerically.]

At a glance, this comparatively small representation might be considered a cause of regret, as suggesting lack of interest; but we are inclined to believe that this very fact, so far as it is a fact, is an encouraging one, showing a serenity which arises from contentment with the present situation. A sense of dissatisfaction would be likely to be exhibited in quite another manner. Then, again, still admitting its smallness, we know from long experience that the members of the trade we represent are not very energetic correspondents, and that

they require a subject of immediate and individual concern to arouse them to the point of writing a letter. How many circulars do you suppose it required to gather in those 200 letters published in our last number under the heading "How's Trade?" It took 1,000 circulars, and 1,000 postal cards with return addresses printed on them all ready for the mail! That might discourage a "freshman," but it realized just about the result we counted on, and the returns included nearly all the prominent and active leaders of the trade, which was also a result we confidently depended on. The same is true of our ballot. Although apparently small, as compared with the full membership of the Association, it includes very few Associate Members, who, as a class, declined to vote, and is therefore mainly confined to the Active Members, and such of those as form the bone and muscle of the body corporate. *As a matter of fact, the returns embrace replies, in the form of votes or explanatory letters, from over one-half the Active Members of the Association.*

Now, does the ballot give any hint of dissatisfaction with the present executive force of the Association? Not the slightest! Almost without an exception the candidates suggested are those who are already identified with its management. The actual number of votes shown to the credit of each individual, we look upon as of little or no consequence. If any readers of our journal imagine that those small figures standing opposite the names of Messrs. McLear, Emerson, Britton, Studebaker, Firestone, Rogers, Timken, Pray, Thomas, Kimball, Stivers, Hooker and the others, are any index to the number of friends which these gentlemen possess among the members, they are not only grossly mistaken themselves, but they entirely mistake our object in instituting this informal ballot. We are not seeking to rally the friends of the present management, or to make any comparison of the number of their friends; and any supposed relation between the two facts which may appear to exist in the published figures is purely fictitious. What we are searching for is just the contrary class of facts. We want to discover whether there are any would-be opponents to the present mode of management—wholly exclusive of individuals; and, if so, what the grounds of such opposition may be, and how these grounds may be removed. We want to see the Association, now in the pride of its strength, doing all for the trade it represents that its present vigor permits it to do. Even if our ballot had discovered an opposition party, we should not have considered that a cause for regret, for all men cannot think alike and all men do not work alike, and it is better that they should not. But our ballot brings to light no such reform or independent party; and, as the expression of one-half the Active Membership, it is quite sufficient, in the absence of any showing of opposition, to clearly indicate the confidence which the members have in the present management.

Let us omit the idea of an exclusively Presidential canvass, and compare the list of candidates named in our ballot with that of the executive forces of the organization now in power. Here below is a full list of the officers and committees of the Association, as appointed at the last convention for the year 1883-84. Names preceded by a star indicate the candidates whose names have appeared in our informal ballot, clearly showing that the two lists are nearly identical:

PRESIDENT:

*Henry C. McLear.....Wilmington, Del.

VICE-PRESIDENTS:

*Geo. A. Ainslie, (Senior Vice-President).....Virginia.
 *Hugh Johnson.....Michigan.
 Joseph Enders.....Kentucky.
 *Lowe Emerson.....Ohio.
 Robert H. Graham.....District of Columbia.
 Zenas Thompson, Jr.....Maine.
 *Wm. P. Sargent.....Massachusetts.
 *Wm. T. Haydock.....Missouri.
 John C. Goold.....New-York.
 Charles S. Caffrey.....New-Jersey.
 C. F. Kimball.....Illinois.
 E. M. Hallowell.....Minnesota.
 P. E. Studebaker.....Indiana.

SECRETARY AND TREASURER:

*Frank H. Hooker.....New-Haven, Conn.

EXECUTIVE COMMITTEE:

*Rufus M. Stivers, *Chairman*.....New-York City.
 *Wm. D. Rogers.....Philadelphia, Pa.
 *Wilder H. Pray.....New-York City.
 *Jno. W. Britton.....New-York City.
 *C. D. Firestone.....Columbus, Ohio.
 *Henry C. McLear, *Ex-officio*,Wilmington, Del.
 *Frank H. Hooker, *Ex-officio*,New-Haven, Conn.

COMMITTEE ON TECHNICAL EDUCATION:

*John W. Britton, *Chairman*.....New-York City.
 *Wilder H. Pray, *Treasurer*.....New-York City.
 *Wm. D. Rogers.....Philadelphia.
 *Lowe Emerson.....Cincinnati, O.
 *Chauncey Thomas.....Boston, Mass.
 Wm. N. Fitz-Gerald.....Newark, N. J.
 *Geo. W. W. Houghton, *Secretary*.....New-York City.

Does the present management need any further assurance of sympathy and approval than the above starred list presents?

* * *

The source of the recorded votes is the next subject that deserves attention, with special view to ascertaining whether any feeling of sectional jealousy is thereby made apparent. Here are the facts, so far as shown by the ballot.

Out of the 21 eligible candidates who are named, 10 are representatives of the Eastern States, 1 of the Southern States, and 10 of the Western States. This would suggest an even balance of power.

Next, let us see from what sections these candidates have received their votes. Here are these facts.

The 10 Eastern candidates, including Mr. Henry C. McLear, who stands numerically foremost among them, have received 49 Eastern votes, 9 Western, and 1 Southern. The 1 Southern candidate has his vote from the West. The 10 Western candidates, with Mr. Lowe Emerson numerically foremost, have 23 Eastern votes, and 23 Western votes, a result that we look upon as particularly pleasing. The above figures account for the full 106 positive votes recorded in our last number.

It was our intention to separate the votes into two classes, those received from Active and those from Associate Honorary Members, but there are so few of the latter that the result of the comparison would be valueless.

It will be noticed, by the above review, that the information gained by our informal ballot is confined to two facts, namely: obvious approval of the present management of the Association, and absence of any apparent desire to change that management. In Paper No. IV, to follow in our next number, we propose to review the correspondence that has accompanied the ballots above spoken of, presenting numerous extracts, of course anonymously, from the confidential letters which accompanied them.

ANOTHER LAZIER IN THE FIELD.

PEACE there is none, we perceive, for the carriage trade or the carriage-trade journal. Last month we published a sort of obituary notice of Lazier, the traveling swindler, who is now safely in jail at Kingston, Ontario; and, in so doing, used the following expressions: "It is to be hoped that we may now enjoy three years of grace." We managed to snatch two days of grace, and then, on July 3d, came the following depressing letter from friends in Belleville, Ill.

BELLEVILLE, ILL., July 1, 1884.

MR. HOUGHTON, EDITOR OF THE HUB—DEAR SIR: Do you know anything of the Osgood Wood Finish and Paint Co., 140 Bond-st., Cincinnati, O., and are they reliable? A man claiming to be their agent has been through this section, selling recipes (shop rights) for their "First Coat and Wood Filler."

An immediate answer to the above questions will very much oblige,
 Yours truly, HEINZELMAN BROS.

We knew too well what this meant! We had never before heard of the Osgood Wood Finish and Paint Co., and had no hopes of finding them; but we immediately dispatched a decoy letter, written by our Mr. Redding, to the address named. Its subsequent return did not surprise us, nor did the accompanying announcement by Mr. Whitfield, the Cincinnati postmaster:

EXECUTIVE DEPARTMENT, POST OFFICE, CINCINNATI, OHIO,
 July 16, 1884.

Respectfully returned to C. H. E. Redding, New-York, N. Y., with the information that there is no such firm in this city. Mr. Kahler, Superintendent of City Delivery in this office, thinks he recognizes in the agent mentioned a man who was arrested and sentenced in the Police Court in this city, some five years ago, for conducting a similar scheme among the tanners and varnish manufacturers of this city. (Signed) S. A. WHITFIELD, Postmaster.

We don't care to particularize what we have since done in this matter; but we hope, before we get through, to see this disciple of Lazier brought to justice. In the meantime, we will be greatly obliged if every reader of this article who thinks he knows anything about the man in question, will make it his duty to promptly communicate to us all the facts, particularly with reference to his personal appearance and mode of dealing. Please refer to our issue of March last, page 793, and notice how far the alleged "Wood Filler Swindler," there described, seems to correspond with one above mentioned.

REVISED TARIFF OF CARRIAGE REPAIRS IN DAYTON, O.

We published in our April number, pages 112-114, the "Dayton, O., Tariff of Carriage Repairs," which has since attracted much attention among our Western readers, and called out many expressions of opinion as to the prices named, both commendatory and otherwise.

We refrain from making public any of the criticisms, inasmuch as we have been informed that numerous changes have recently been introduced in the Dayton tariff; and a copy of the revised list, as since furnished us by one of the officers of the Carriage and Wagon Makers' Protective Association of Dayton, contains so many and important corrections and additions, that we have thought proper to present below the full text of the newly revised list, which is as follows:

WOODWORK.

One set new Rims, 3/4 to 1 1/4 in., rounded.....	\$8 00
One set new Rims, 3/4 to 1 1/4 in., square.....	7 00
One new Rim, 3/4 to 1 1/4 in., rounded.....	2 00
One new Rim, 3/4 to 1 1/4 in., square	1 75
One-half new Rim, 3/4 to 1 1/4 in., rounded	1 00
One-half new Rim, 3/4 to 1 1/4 in., square	1 00
Cutting down Spokes, extra, per set of Wheels.....	1 00
New Spokes in Wheels, plain, each.....	25
New Spokes in Wheels, patent, each.....	40
Wedging Boxes in Wheels, each	25 to 75
New Spring-bar in Box Buggy	1 25 to 1 50
New Straight Perch in Buggy, ironwork included.....	4 00
New Bent Perch in Buggy, ironwork included.....	5 00
New Axle-beds, ironwork included	2 00 to 2 50
New Cross-bar in Shafts, ironwork included	1 25 to 1 75
New Singletree, ironwork included.....	1 00 to 1 25
One Shaft, single bend, ironwork included.....	2 00
Two Shafts, single bend, ironwork included	4 00
One Shaft, double bend, ironwork included	2 50
Two Shafts, double bend, ironwork included.....	5 00
One new Bent Pole Beam, using old irons and trees.....	5 00
One new Straight Pole " " " "	4 00
One new Coach Pole, using old irons and trimmings.....	5 00
One new Bow, woodwork only	2 00
One side of new Bow, woodwork only	1 25
New Side-panel in Buggy, woodwork only.....	3 50
New End-panel in Buggy, woodwork only.....	2 50
New Spokes in old Hub, complete.....	4 00 to 6 00
New Hub in old Wheel, complete.....	3 00 to 5 00
Set of new Wheels, complete : Wagon, Light, 1 1/4 in. Spokes,.....	30 00 20 00
Ditto Wagon, Medium, 1 1/2 in. Spokes	35 00 30 00
Ditto Wagon, Heavy, 1 3/4 in. Spokes	45 00 35 00
One set of Band Wheels, complete : Buggy, 1 1/4 in. Spokes,	40 00 25 00
Ditto Phaeton, 1 1/4 in. Spokes.	40 00 25 00
Ditto Carriage	45 00 35 00
Ditto Rockaway	50 00 40 00
Ditto Coach.....	55 00 45 00

IRONWORK.

One new Shifting-rail, Buggy.....	5 00
Ditto put in job Complete, using old trimming.....	7 00
One set new Top-joints, Buggy.....	3 00
Ditto Carriage.....	5 00
One new Axle-arm and Box, Wheels 3/4 to 1 1/8 in.	3 50 to 5 00
One new Axle-arm and Box, Wheels 1 1/4 to 1 1/2 in.....	4 00 to 5 00
Setting Axles, each.....	1 50
New Spring, 1 1/4 in., 4 plates	4 00 to 5 00
New Spring, 1 1/4 in., 5 plates	4 50 to 5 50
New Main-plate in Spring	1 50 to 2 00
New other Plate in Spring	75 to 1 50
Welding Main-plate in Spring	75 to 1 50
Welding other Plate in Spring	50 to 1 00
New Carriage-bolts, each	10 to 15
New Tire-bolts each, 5 to 10 cts., drilling new holes, extra, each.....	5
New Clip King-bolt	1 50
Splicing King-bolt.....	75
Welding King-bolt.....	50
New Jack Clip-bolts, each.....	25
New T-head Singletree-bolts, each.....	30
New Axle-clips, each	25
New Box-clip	2 00
New Spring-clip	30
New Saddle-clip.....	2 00
Mending Shaft-irons, each.....	75
One new Jack-clip and Shaft-eye	1 50
Two new Jack-clips and Shaft-eyes.....	2 50 to 3 00
Mending Perch-plate	2 00 to 3 00
Mending Stays.....	75 to 3 00

One set Steel Tires, 3/4 to 1 in.	8 00
One set Iron Tires, 3/4 to 1 1/8 in.....	7 00 to 8 00
Setting 4 Tires, Spring Wagon	2 50
Setting 4 Tires, Carriage or Buggy.....	3 00
Setting 4 Tires, Coach	5 00
Setting 1 Tire, Spring Wagon.....	75
Setting 1 Tire, Carriage or Buggy	75
Coal, by hand blast, per hour, 5 lbs.....	Estimate.
Coal, by power blast, per hour, 4 1/2 lbs.	Estimate.
Time estimate : Fire No. 1, on repairs, 1st hour, \$1 ; each additional hour,	75
Ditto Fire No. 2, on repairs, 1st hour, 75c. ; each additional hour.....	50

	Iron.	Steel.		1 Arm.	2 Arms.
New set of Axles, Buggy	\$12 00	16 00	Resetting Axles.	1 00	1 50
Ditto Carriage.....	15 00	18 00	" "	1 00	1 50
Ditto Rockaway.....	20 00	25 00	" "	1.50	2 50
Ditto Coach	25 00	35 00	" "	2 00	3 00
Ditto 1 1/4 Wagon	12 00	....	" "	1 00	1 25
Ditto 1 1/2 Wagon	15 00	....	" "	1 00	1 25
Ditto 1 3/4 Wagon	20 00	....	" "	1 50	2 00

	Iron.	Steel.		1 Tire.	4 Tires.
New set of Tires, Buggy	\$7 00	8 00	Resetting.....	75	3 00
Ditto Carriage.....	8 00	10 00	"	75	3 00
Ditto Rockaway.....	10 00	14 00	"	1 00	3 50
Ditto Coach	12 00	16 00	"	1 50	5 00
Ditto Wagon	7 00	....	" .....	75	2 50
Ditto Wagon	9 00	....	" .....	1 00	3 00
Ditto Wagon	12 00	....	" .....	1 25	4 00

PAINTING.

Painting Gear and Varnishing Body, Coach.....	40 00
Painting Gear and Body, Coach.....	60 00
Burning off Body and Re-painting, Coach	90 00
Painting Gear and varnishing Body, Falling-top Carriage.....	15 00
Painting Gear and Body, Falling-top Carriage.....	20 00
Burning off Body and Re-painting, Falling-top Carriage	25 00
Painting Gear and varnishing Body, Phaeton or Box Buggy	12 00
Painting Gear and Body, Phaeton or Box Buggy.....	15 00
Burning off Body and Re-painting, Phaeton or Box Buggy	20 00
Varnishing Body and Gear, " " "	10 00
Painting Gear and varnishing Body, Jagger Wagon.....	15 00
Painting Gear and Body, Jagger Wagon.....	17 00
Varnishing Gear and Body, Jagger Wagon.....	10 00
Painting Gear and varnishing Body, Four-passenger Rockaway.....	35 00
Painting Gear and Body, Four-passenger Rockaway	40 00
Burning off Body and Re-painting, Four-passenger Rockaway.....	55 00
Painting Spring-wagons	10 00 to 15 00

[NOTE.—The numerals and abbreviations used to distinguish the following additional items of painting, indicate the following jobs, namely: 1. "P," Plastering; 3, "TV," Pumicing down, touching up and varnishing; 4, "CV," Sandpapering, coloring and varnishing; 5, "CCV," Cutting close or burning off, painting, coloring and varnishing.] "V" varnish.

	Light Wagon.	Heavy Wagon.	Jagger.	Buggy.	Surrey.	Carriage.	Rockaway.	Coach.
1. "P," .....	..	..	..	..	..	..	..	..
2. "V,"	\$6 00..	8 00..	10 00..	10 00..	12 00..	12 00..	20 00..	30 00
3. "TV,".....	8 00..	10 00..	12 00..	12 00..	13 00..	13 00..	25 00..	35 00
4. "CV,".....	10 00..	13 00..	15 00..	15 00..	17 00..	20 00..	40 00..	60 00
5. "CCV,".....	15 00..	18 00..	20 00..	20 00..	22 00..	25 00..	65 00..	90 00
Scraping Gear, extra,	3 00..	4 00..	3 00..	3 00..	3 00..	3 00..	5 00..	6 00
Platforms,additional, ..	5 00..	5 00..	5 00..	5 00..	5 00..	5 00..	6 00..	8 00
Lettering : painted plain.....	per foot							
Ditto, painted and shaded	"							
Ditto, painted, shaded and ornamented.....	"							
Ditto, gold.....	"							
Ditto, gold and shaded.....	"							
Ditto, gold, shaded and ornamented.....	"							

TRIMMING.

New Side Curtains, Rubber, per pair.....	4 00
Ditto, Flock, per pair, Flock or Colored Rubber.....	6 00
Ditto, Rubber, per pair, lined.....	8 00
Ditto, Leather, per pair, lined.....	11 00
New Back Curtains, Rubber, complete.....	2 50
Ditto, Colored Rubber	3 50
Ditto, lined.....	5 00
Ditto, Leather, lined.....	7 00
New Wagon Curtains, side, rubber.....	2 00 to 3 00
New Wagon Curtains, back.....	3 00 to 3 75
New Aprons.....	3 00 to 5 00
Ditto, Whip-socket.....	7 00
Ditto, Bow Socket, steel.....	2 00
Splicing one Bow.....	7 00
New Leather on Side where Bow has been Spliced.....	1 00
Trimming Shafts, Complete.....	1 50 to 3 00
Ditto, Carpet in Box Buggy, Brussels.....	2 00 to 3 00
Ditto, Carpet in Box Buggy, Velvet.....	2 50 to 3 50
Ditto, best Wilton Carpet.....	4 00 to 5 00
Ditto, Top-props, each.....	1 25
Ditto, Top-prop Nuts, Japanned, each.....	3 00
Ditto, Plated, each.....	3 00

TRIMMING—continued.

Recovering Dash, Moleskin.....	3 00		
Ditto, Wagon Dash, Leather, Split.....	4 00		
Ditto, Buggy.....	5 00		
Ditto, Phaeton or Carriage.....	7 00		
Ditto, Coach Dash, grain.....	9 00		
Ditto, Fenders, each, split.....	3 00		
New Top Cloth in Cushion.....	2 00	4 00	
	Cushion.	Fall.	Both.
New Cushion and Fall, Wagon.....	3 50	50	4 00
Ditto, Buggy.....	6 00	2 00	8 00
Ditto, Phaeton.....	7 00	2 00	9 00
Ditto, Jagger.....	5 00	1 00	6 00
	Seamed.	Bound.	
New Slip Lining, Buggy.....	5 00	6 00	
Ditto, Phaeton.....	6 00	7 00	
Ditto, Carriage.....	6 00	7 00	
Ditto, Rockaway.....		12 00	
Ditto, Rockaway and deck.....		20 00	
Ditto, Coach Lining.....		20 00	
Ditto, and deck.....		35 00	
	Smith-work.	Trimming.	Total.
New Dash, Wagon.....	3 00	4 00 split	7 00
Ditto, Buggy.....	3 50	4 50 "	8 00
Ditto, Phaeton or Carriage.....	4 50	7 00 "	11 50
Ditto, Coach.....	5 00	9 00 grain	14 00
New Canvas on Wagon Top, Complete.....			25 00
Ditto, Rubber.....			20 00
Ditto, Buggy Top.....			25 00
Ditto, Carriage.....			35 00
Ditto, Leather, Buggy.....			40 00
Ditto, Carriage.....			60 00
Ditto, Rubber Top, Buggy, using old rail and back.....			40 00
Ditto, Carriage.....			60 00
Ditto, Leather, Buggy.....			60 00
Ditto, Carriage.....			90 00
Ditto, Rubber, Wagon, Bows and Rubber, Complete.....			30 00
Ditto, Duck Deck on Wagon.....			4 00
Ditto, Rubber Deck and Quarters on Buggy.....			18 00
Ditto, Carriage.....			25 00
Ditto, Leather, Buggy.....			25 00
Ditto, Carriage.....			35 00
Ditto, Canvas, on Coach.....			10 00

* * *

NOTE.—In a letter dated July 5th, received by us from Mr. Chas. A. Bedell, President of the Dayton Association, he says: "I am glad to hear that members of the trade in other cities have derived benefit from our Carriage Repair Tariff as published in your May number; but I would suggest that the attention of all such should be called prominently to the revised list since sent you [the one reproduced above], as the one you previously published, although correctly copied from our printed list, would cause them to lose on some items."

In the same letter, Mr. Bedell promises to send us a revised list of the Repair Tariff for Business Vehicles, adopted by the same Association, which we hope to be able to make public in our next number.

COMPARATIVE MERITS OF STIFF DRAW-BARS AND EVENERS.

(Response to Shepard-Britton Debate, June *Hub*, page 181.)

NEWPORT, R. I., June 22, 1884.

TO THE EDITOR OF THE HUB—DEAR SIR: In the discussion between Mr. Britton and Mr. Shepard, reported on page 181 of the June number of *The Hub*, some points in connection with stiff bars and eveners were not touched upon.

Few coachmen or coach-makers seem to recognize the difference in the action of the horses upon the carriage with an evener or a stiff bar. With an evener, the guiding of the vehicle is done altogether by the pole pieces, and the fore-carriage does not take a new direction until the horse on the inside of the turn gets far enough away from the pole to tighten his pole-piece and draw the point of the pole toward him. This can best be observed by looking out of the front window of a Broadway stage, where it will be seen that the horses have to be pulled off a considerable distance to turn the stage away from a passing vehicle, rendering the driving loose and inelegant and somewhat dangerous.

On the other hand, with a stiff bar the vehicle is turned by the outside horse on the turn moving faster than the other, as well as by the pull of the pole pieces, and much neater guiding is accomplished by dropping the whip on the back of the outside horse, in addition to the indication of the reins, or in place of it.

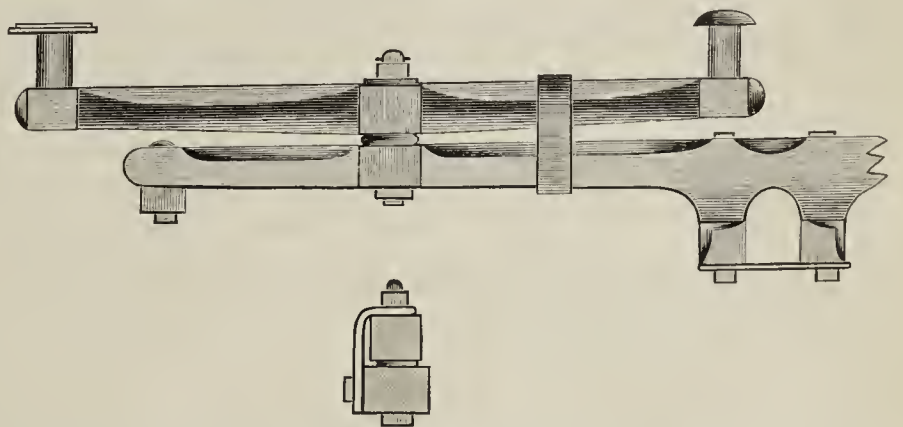
For careless or incompetent coachmen, the evener is no doubt better for the horses; but a driver should be able to make his horses work

evenly by constantly watching them, or he should be replaced by some one who can.

The real solution of the problem seems to a great extent to have escaped the attention of carriage-builders. It is to make the doubletree fixed, and the singletrees movable. All horses move their shoulders forward alternately in walking or trotting,—some much more than others, and with a stiff bar the whole draught comes first upon one shoulder and then upon the other, and tends to strain or gall them. This action can be felt in a one-horse brougham when the traces are attached to cockeyes on the outer futchels, and is often very disagreeable. If, in the one or two-horse vehicle, the singletree is left free to oscillate, by being attached to the carriage-part by its center only, the forward motion of one shoulder is taken up by the backward motion of the opposite one through the traces and the singletree, the action of the horse is not interfered with, and chafing the shoulder is prevented. At the same time, the advance of one horse will turn the carriage, as in the case of the completely stiff bar, though a little less promptly, perhaps, since the point of application of the force is nearer the center.

It is the want of movement of the stiff bar with regard to the action of the shoulder, that forms the real objection to its use, and that cannot be overcome by skill in driving. For carriages used only at a slow speed, in town, the difference to the horses is not great; the stiff bar is neat and simple, and the outside roller-bolt is almost essential as forming a step for the footman to get on to the box from; but the moment that a carriage is used for longer drives, even in the park, the advantage of the moving singletree becomes apparent. I long ago adopted this system for a coach, and immediately found that stiff shoulders disappeared from my wheel horses, and that they did their work with as much comfort as the leaders did theirs. One can see, in looking down upon the outer point of the singletree from the box, that it moves, with each step of the horse, from one to two inches, depending upon the amount of action of the animal.

In the ordinary construction of the evener adapted to heavy traces with loops, the singletrees are round, and fastened to the doubletrees by leathers, which latter are liable to rot and break, and the trace-loops are put over scores turned in the ends of the singletrees. This puts a quarter turn in the trace, which injures its trim appearance; and the point of the singletree, being unsupported, cannot be used as a step for getting on to the box. These objections, however, can be avoided by putting the singletrees on top of the bar on strong pins, and putting the roller-bolts on the ends of them in the usual way. To the casual observer, there is no difference in appearance from the ordinary stiff bar, and the outside roller-bolt serves as a step. I inclose a drawing of the arrangement as applied to a coach and to a mail phaeton, and would call the attention of builders to it as worthy of consideration.



The idea of a stiff bar with singletrees is of course not original with me. If I am not mistaken, all the Paris omnibuses have them, and I have frequently seen them upon heavy work in this country; but the adaptation to coaches and dress carriages, as shown in the drawing, is, I believe, new.

FAIRMAN ROGERS.

SOMETHING NEW IN VENDER WAGONS.

A MAN in a blue jumper, who blew himself red in the face at regular intervals tooting a fishhorn, led a horse of consumptive gauntness through the tenement district of the East side last Friday. Behind the horse was a new venders' wagon, heaped with vegetables and fish.

"Ere yar! fish, wedge-eatables, and hicc!" shouted the vender, letting the horse stand still as customers flocked around. They saw the wagon was something new in the wagon line, and had a double bottom. The vender gathered fish and vegetables from the top. When a customer wanted ice, he threw down the back board, and yanked a piece out with a hook from a supply that was snugly stored under the false bottom on which the fish and vegetables were spread.

"This 'ere is a patent wagin," the vender said, getting ready for a fresh start. "Yer see, the ice is stored down there where it won't melt, and it keeps the fish and wedge-eatables cool and fresh at the same time. The feller wot invented it had a big head, yer kin bet!"

A PEN PICTURE OF LAZIER, THE SWINDLER.

THE photo-engraved reproduction of Lazier's portrait which appeared in our last number was evidently studied with peculiar interest by our readers, including many victims of his wiles, which latter, we are led to believe, are more numerous than they have cared to confess. The following letter from Mr. G. W. Robinson, proprietor of the Robinson Carriage Works, at Kingston, Ontario, contains a supplementary pen picture of Lazier as he appears in the rôle of convict, and thus forms an appropriate after-piece.

* * *

DEAR HUB: As a great many of your readers know Mark Lazier, either through unfortunate personal acquaintance or by reading about him, they may like to hear how he looks, and what he is doing at present.

About the first of the month, Mr. John Campbell's son, of London, Ont. (carriage-builder), and myself visited the prison in Kingston where he is confined. I asked the guard who showed us around to point out Lazier, but he replied that he was not allowed to do so; I thought I might not recognize him, as it is nearly six years since he tried his little game on me, at which time he failed. In entering a large room where about fifty or sixty convicts were employed in mending the others' clothes, I was asked by the guard: "Now, let's see if you know him."

I looked at every one in the room very carefully; and when I had come nearly to the last one I saw and recognized the noted Lazier. He was counting some shirts that he had been mending. When we approached near him, he turned and looked me square in the face, and gave me a sickly grin. His mustache is short, and he is letting his whiskers grow all over his face, which will change his looks considerably. He wore the convict's suit. One leg of his cloth pants is black and the other a dark yellow, his shirt white and brown, and he had a plain straw hat on his head. After counting his shirts, he folded them up, took them to the storeroom, and then resumed his easy task (I should think it a hard one), using a little steel bar.

I think your portrait of him in the last *Hub* a very good one, but he looks now more as he did six years ago. Then he had a light and small mustache. With this off, he looks more boyish. I think the nose in the picture is not quite like his; but in the forehead, eyes, chin and neck, I see Lazier very clearly; and I think any one that Lazier has swindled would know him in any suit of clothes, or with his beard full grown, or, as the old saying is, would "know his hide in a tan-yard." Since receiving my July *Hub*, I have shown it to one of the guards of the prison, who sees Lazier every day, and he recognized your picture, saying "It's the dead image of him!"

Since my visit to the prison I understand that Lazier has been given charge of the storeroom, and that he keeps the books and marks and numbers the clothes. He feels himself a little above the others on this account. Lately he asked permission to wear a collar, and has been allowed to do so.

He is well behaved, I understand; and by reason of this he will get a rebate of five days per month, which will reduce his term of three years to about two and a half. I doubt very much if his friends will get him out, as it is very seldom that a short-course convict can escape his allotted time by being pardoned.

G. W. ROBINSON.

KINGSTON, ONT., July 19th.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING JUNE, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between June 3d and June 24th in the current year:

JUNE 3d, 1884.

Axle-bevel.....	F. W. Flynn.....	Woodstock, Conn.
Vehicle Axle-cutter.....	A. N. Ruiter, ¹	Abercorn, Quebec, Can.
Brake Shoe.....	G. Chanier.....	Le Donjon, France.
Carriage Top.....	C. L. Pritchard, ²	Dubuque, Ia.
Vehicle End-gate.....	S. E. Chamberlain.....	Kansas City, Mo.
Thill-coupling.....	S. Craig.....	Holmesburg, Pa.
".....	L. J. Dresser, ³	Uxbridge, Mass.
".....	S. D. Lecompte.....	Leavenworth, Kan.
".....	C. E. Struck.....	Newark, N. J.
Vehicle Canopy-holder.....	H. Eichling.....	New-York, N. Y.
Vehicle Platform Gear.....	C. C. Wilson.....	Mansfield, Pa.
Vehicle Spring.....	J. Herbrand.....	Fremont, Ohio.
".....	J. Percy.....	Chicago, Ill.
Vehicle Wheel.....	J. J. Bush.....	Tacoma, Wash. Ter.
Wagon Bolster Spring.....	J. R. Callhoun.....	St. Louis, Mo.
Wagon Brake.....	T. W. Southard.....	Rose's Valley, Pa.
".....	A. J. Steele.....	Allegheny, Pa.
Wheel.....	R. Adams.....	Southwark, Surrey, Egn.

JUNE 10th, 1884.

Wagon-axle.....	H. H. E. Bery.....	Brooklyn, N. Y.
Buggy-seat Shifting-rail.....	R. G. Wood, ⁴	Cincinnati, O.
Road Cart.....	I. Dolson.....	Beemerville, N. J.
End-gate Rod for Vehicles.....	J. Jensen, ⁵	Racine, Wis.
Wagon End-gate.....	D. B. Keagy.....	Idaho Springs, Col.
Fifth-wheel.....	H. H. E. Bery.....	Brooklyn, N. Y.
Horse Detacher.....	O. Dufas, ⁶	San Rafael, Cal.
Vehicle Hub.....	J. Johnson, ⁷	Toledo, O.
Drop-perch Coupling.....	T. D. Lines.....	Syracuse, N. Y.
Thill-coupling.....	J. W. Carns, ⁸	Pierce, O.
".....	R. R. Earnest, ⁹	Mechanicsburg, O.
Anti-rattler for Thill-coupling.....	J. M. Haas, ¹⁰	Wabash, Ind.
Vehicle Propelled by Com-pressed Air.....	D. S. Troy.....	Montgomery, Ala.
Vehicle Spring.....	H. J. Schild.....	Stanton, Mich.
Vehicle Spring Attachment.....	P. Hebert, ¹¹	Burr Oak, Kan.
Vehicle Top.....	F. A. Korizek.....	Milwaukee, Wis.
Two-wheeled Vehicle.....	A. Davis, ¹²	Mason, Mich.
Vehicle Wheel.....	J. Dietrich.....	Brushland, N. Y.
Wagon Brake.....	B. F. Ball.....	Cincinnati, O.
".....	M. T. Preston.....	Pentler, Ill.
Wheel.....	R. S. Carr.....	Hamilton, O.
".....	S. T. Williams.....	Red Bank, N. J.
Whiffletree Hook.....	M. E. Hamilton.....	Auburn, N. Y.

JUNE 17th, 1884.

Axle-fastening.....	J. V. Rowlett, ¹³	Richmond, Ind.
Buggy-top.....	A. M. Cochran, ¹⁴	Terre Haute, Ind.
Canopy Top.....	T. Zanger, ¹⁵	Buffalo, N. Y.
Clamp for Canopy-top.....	T. Zanger, ¹⁶	Buffalo, N. Y.
Carriage Curtain Attachment.....	W. Downham, ¹⁷	St. Johns, Mich.
Dump-cart.....	R. Clark.....	Brockville, Ont., Can.
Fifth-wheel.....	W. M. Appleman.....	Benton, Pa.
Hub.....	J. F. Packer.....	Chicago, Ill.
Spring Coupling for Vehicles.....	G. F. Thompson, ¹⁸	Oshkosh, Wis.
Thill-coupling.....	J. A. Green.....	Waltham, Mass.
Hood for Vehicle Tops.....	C. T. Shreve, Delaware, Camden Co., N. J.	
Two-wheeled Vehicle.....	J. D. Libey.....	Lima, Ind.
Wagon Brake.....	W. Parks and S. M. Smith, Cassville, Mo.	
Wagon Dasher.....	E. Myrick.....	Harvard, Mass.
Wagon Seat.....	P. J. Kern.....	Frankford, Ind.
Wheel.....	J. V. Rowlett, ¹⁹	Richmond, Ind.

JUNE 24th, 1884.

Vehicle Axle-nut.....	H. B. Gibbon.....	Tiffin, O.
Sleigh-bell.....	D. A. Rich, ²⁰	East Hampton, Conn.
Carriage Top.....	H. Higgin.....	Newport, Ky.
Light Frame for Carriages.....	H. Higgin.....	Newport, Ky.
Jump-seat.....	J. T. Clarkson, ²¹	Amesbury, Mass.
Shifting Pole for Vehicles.....	J. T. Clarkson, ²²	Amesbury, Mass.
Thill Coupling.....	E. P. Alexander.....	Clinton, N. Y.
Tongue Support.....	S. B. Reid.....	Wiley's Station, O.
Vehicle Brake.....	J. R. Miles and J. K. Baldrige, Ralston Station, Tenn.	
Vehicle Spring.....	R. H. Cornett.....	Emporia, Kan.
Spring Vehicle.....	M. G. Hubbard.....	Norristown, Pa.
Vehicle Wheel Spindle.....	W. Holloway and T. L. Clevenger, Neff, Ind.	
Wagon Jack.....	D. B. Kinne.....	Rochester, N. Y.
Wagon Running-gear.....	J. B. Spry and T. Barry, Valparaiso, Ind.	
Whiffletree Hook.....	J. Rancevan, ²³	Cincinnati, O.

¹Assignor to O. N. Elkins, North Troy, Vt.

² " of one-half to John Kuntz, same place.

³ " of one-half to C. S. Weston, same place.

⁴ " by mesne assignments of one-half to the Queen City Forging Company, same place.

⁵ " to the Jensen Mfg. Co. (Limited), same place.

⁶ " of one-half to Isaac Shaver, same place.

⁷ " of one-half to T. M. O'Neill, same place.

⁸ " of one-half to Geo. Walker, Jr., same place.

⁹ " of one-half to T. M. Bates, same place.

¹⁰ " of two-thirds to L. H. Fougères and Geo. W. Blair, same place.

¹¹ " of one-half to J. F. Williamson, same place.

¹² " to the Mason Road Cart Co., same place.

¹³ " to Anna E. Rowlett.

¹⁴ " of one-half to Peter N. Staff, same place.

¹⁵ " of one-half to J. B. Sweet & Son, same place.

¹⁶ " of one-half to J. B. Sweet & Son, same place.

¹⁷ " of one-half to P. K. Perrin, same place.

¹⁸ " to himself and Andrew Wilson, same place.

¹⁹ " to Anna E. Rowland.

²⁰ " to the Starr Bros. Bell Co., same place.

²¹ " of one-half to F. A. Babcock, Salisbury, Mass.

²² " of one-half to F. A. Babcock, same place.

²³ " to Elisha Robinson, New-York.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.



POSTAL-CARD ANSWERS TO CORRESPONDENTS.

To Anon, Ont.: Buy Bauerman's "Metallurgy," published by Virtue & Yoster, No. 12 Dey-st., New-York.

To J. E. S., Glen's Falls, N. Y.: English & Mersick, of New-Haven, Conn., make a specialty of Brewster gears such as you describe.

To M. R. Smith & Co., Smithtown, L. I., N. Y.: We have no acquaintance with the Castor Road Cart Co., but would suggest that their address is perhaps at Castor, Ill. Can any of our readers help us to answer our correspondent's inquiry more definitely?

To W. M. H., ———, N. Y.: Yes; we have published in former volumes quite a number of specimen "Shop Rules and Regulations" specially adapted to carriage factories; but we are unable to fill your order for the numbers containing them, as we have no surplus stock. The latest are the following: the rules adopted by Short & Smith, carriage-builders, of Syracuse, N. Y., April *Hub*, 1881; S. B. McCord, of Baker City, Oregon, July, 1882; and Gainsford Carriage Works, of Cincinnati, O., May, 1883.

WHO MAKES BASKET WOOD PANELS?

BELLEVILLE, ILL., July 1st.
EDITOR OF THE HUB: Will you please inform us by return mail where we can procure basket wood panels?
HEINZELMAN BROS.

ANSWER.—Woven wicker-work for bodies is made both by Marcy & Knoblaugh, of Cincinnati, O., and The Dann Bros. & Co., of New-Haven, Conn. The imitation (in wood) is made by J. H. Didier & Co., of New-York City, and another substitute that is largely used is for sale by A. S. Sherwood, of 1555 Broadway, New-York.

DR. VINCENT PROPOSED FOR HONORARY LIFE MEMBERSHIP.

BOSTON, MASS., July 9, 1884.
EDITOR OF THE HUB—DEAR SIR: Being, as you know, a member of the Corresponding Class of the Technical School, I have a deep interest in the "Chautauqua" plan of instruction, by which that part of the school is carried on; but I feel a still deeper interest as a member of the Chautauqua Literary and Scientific Circle; and, although I am not a member of the Carriage Builders' Association, I want to make a suggestion that, in return to Dr. J. H. Vincent, of New-Haven, Conn., for the advantages gained by the Association through the use of his method of education in their Technical School, and out of respect to him as a public educator, he be proposed at the next meeting of the Association for Honorary Life Membership. He is doing a great and good work, and would be an honor to the Association.
Yours very truly,
F. W. TUCKER,
Sec'y Winthrop Local Circle, C. L. S. C.

ANSWER.—The above suggestion appeals to us as a very happy one, and we heartily commend it to the attention of the Executive Committee of the Association. The School is utilizing the Doctor's method of instruction with marked advantage, and his friendly hints to the School Committee, by personal interview and correspondence, have proved invaluable.

A SUGGESTION WELL WORTH CONSIDERING.

RICHMOND, VA., July 17, 1884.
EDITOR OF THE HUB—DEAR SIR: I have a suggestion to make to you in reference to the route of Eastern members of the Carriage Builders' National Association who propose to attend the approaching convention of the Association at St. Louis, in October next,—which is for them to take one of the steamers of the Old Dominion Steamship Co., in New-York, coast along to the capes of Virginia, ascend the historic James River, and land at this city, where I will join them; then take the Chesapeake & Ohio R. R., which offers the grandest mountain scenery in the world, passing through Louisville, and reaching St. Louis by what, in my opinion, is the quickest and most pleasant route you can take.

Please see if you can get some of them to come this way. I am sure the short sniff of ocean breeze would be very beneficial to our friend Mr. Britton, who, I am sorry to hear, has been a little indisposed this summer.

Respectfully yours,
GEO. A. AINSLIE.

NOTE.—We heartily commend the above suggestion to our New-England and New-York friends; and if such a party is made up, we shall be very happy to join. It is a route that we have never been over, and one that offers special advantages of variety and beauty of scenery,—not to mention the pleasure of visiting Mr. Ainslie at his headquarters, where, we know by agreeable experience, the traveler always finds a welcome resting-place.

DISAPPOINTED.

OUR neighbor, *The Hub*, is not making very rapid progress in the canvass for President of the Carriage Builders' National Association, having, as the result of two months' work, gotten but 153 votes, about one-fourth part of the membership. This is a year for President-making, but the carriage-builders do not appear inclined to select candidates until the proper time arrives. This movement on the part of *The Hub* has given the *Carriage Monthly* a desired opportunity, and it is making the most of it.—*Coach, Harness and Saddlery*, July 12th.

NOTE.—We are sorry that our ballot proved disappointing to our New-York contemporary. We published all the votes we received, and are perfectly satisfied with the number, which includes nearly one-half the Active Members of the Association (as explained elsewhere in this number), and nearly all who have heretofore shown any live interest in the Association's work and growth. The stragglers now coming in merely emphasize the facts already sufficiently denoted by the ballot last published.

ACKNOWLEDGMENT FROM AN ENGLISH PRIZE WINNER.

WORCESTER, ENG., June 18, 1884.

G. W. W. HOUGHTON, ESQ.—SIR: I beg to acknowledge the receipt of your favor inclosing post-office order for £3, being the result of my efforts in the late *Hub* prize competition. Please accept my very best thanks.

I can only hope that our English people will give their American cousins the opportunity of a like competition, to reciprocate the kindness which prompted the promoters to extend their offer to this side of the Atlantic. International competitions of this kind would, I believe, have a very beneficial effect.

I am pleased to note the kind remarks of the jurors in reference to my drawing, contained in this month's *Hub* report.

Believe me, sir, yours faithfully,

ALBERT E. BIBBS.

NOTE.—A photo-engraved reproduction of the prize drawing by Mr. Bibbs, referred to in the above letter, accompanies this number of *The Hub*. In technical excellence as a fine specimen of pen-and-ink work, it has no superior in the collection.—ED.

PROBLEM DEPARTMENT.

[This new department has been opened in compliance with the request of a valued contributor. Correspondence is requested.—EDITOR.]

SUBSCRIPTION RECEIPTS.

NEW subscribers sometimes complain at not receiving receipts promptly after remittance. The postal laws allow receipts for subscriptions paid to be inclosed in journals, and subscribers will please look for their receipts in the issue received next after remittance.—*Coach Painter*, for July.

NOTE.—*The Hub* long ago solved this problem. We formerly employed the system above alluded to, but had similar complaints from subscribers. We therefore adopted postal-cards, with printed blank form, which we are accustomed to fill out and return on the day of receipt of subscription. This costs less time and labor, is inexpensive, and seems to give entire satisfaction to all concerned.

SHOULD IT BE HARNESS OR HARNESSES?

TO THE EDITOR: Can you inform me, through *The Hub*, whether the word harness is properly used, singular and plural alike, as applied to horses' furniture?
J. F., of Merrimac, Mass.

ANSWER.—The word *harness* can undoubtedly be used in a collective sense, with reference to several horses; as "harness for three horses." In this respect, it is like *dress* and sundry other words, which may be applied either to the apparel of a single person, or to that of many persons or of people in general. Of course there is also the plural *harnesses*, which has its appropriate uses. We cannot say three *harness*, but three *harnesses*, though we may speak of *harness* for three horses.

PARTICULARS ABOUT PLATFORM WORK REQUESTED.

TILSONBURG, ONT.

TO THE EDITOR: I especially like the problem and query departments in *The Hub*, for that is where I find the practical wrinkles. I have always had a determination to be a good workman.

(1.) I would like to learn about platform work, and any information that would lead me to this goal would be gladly received.

(2.) What does it cost to join the Corresponding Class of the Technical School?
WM. GRASBY.

ANSWERS.—(1.) If our correspondent will suggest special subjects in connection with platform work, we will willingly secure for him such information as we can.

(2.) Full particulars regarding the Corresponding Class can be obtained by addressing Mr. John D. Gribbon, Instructor, 214 East 34th-st., New-York City.

CRITICS' CORNER.

[In opening this new department of our magazine, and requesting contributions, the Editor begs to remind correspondents that *criticism* means "the art of judging with propriety of the beauties and imperfections of a production." No mere fault-finder need apply.]

ENGLISH HONEY VS. ENGLISH VINEGAR.

Extract from "The Stable," London, Eng.

The *Art Journal* and *The Hub* have never been accused of too much love for one another, and lately the old wound seems to have been re-opened. In the course of a little ink-flinging, the former speaks thus tenderly and lovingly of the latter:

"It will be strange indeed if *The Hub* editor does not presently discover that our colored perspectives exactly suit his purpose, proceed to purloin them, and proclaim from the house-top a fresh evidence of his originality. We once heard an anecdote of a would-be dramatic author who, in despair of writing anything original, exclaimed, 'Curse that Shakespeare, he has robbed posterity of all its best ideas.' The editor of *The Hub* has not even the modesty to admit so much, for he appropriates the ideas of others, and has the effrontery to flaunt them as his own."

This, of the finest carriage trade journal ever published, and leaving every competitor some scores of miles in the rear, is a little rough, and is surely hardly true. At any rate, the esteem in which our American contemporary is held in every circle in this country is a tolerably good justification of its action.—*The Stable*, 30 Paternoster Row, London, E. C., England (July 1st).

NOTE.—At the same price, we think we relish the honey quite as well as the vinegar, particularly when the source of supply is remembered.

APPRECIATIVE LETTER FROM A CORRESPONDING PUPIL.

AMONG the "Corresponding Pupils" of the Technical School are many who justly estimate the opportunity it carries to their very doors for making substantial advance in their respective trades; and Mr. Gribbon has received during the past term numerous appreciative letters from unseen and widely-scattered scholars, which have helped materially to give him heart for the hard work which the management of the experimental class has devolved upon him. With his permission, we publish below one of these. It is but a specimen brick from a big pile.

NEW-HAVEN, CONN.

MR. GRIBBON—DEAR SIR: It seems proper that, after finishing a series of lessons, one should say something in behalf of or against it. I just want to say this, that it is the best chance a poor devil ever got! I have tried my best, as your pupil, to give some satisfaction, in return for your efforts and kind encouragement. I only hope, at the close of the next series, that you will be able to say: "That fellow is working hard, and is trying to keep his hands and paper clean."

Yours respectfully,

C. K. (Blacksmith.)

With willing pupils such as this one, there can be no doubt as to the present benefits and future success of the corresponding class.

A LONDON CRITIC QUESTIONS MR. GRAY-PARKER.

LONDON, ENG., June 10th.

MR. EDITOR OF THE HUB—DEAR SIR: I very greatly admire the engraving: "Opening of the Season at Newport," presented in your June issue, and particularly the skillful way in which Mr. Gray-Parker has harnessed his team. This very admiration, however, has made me look hyper-critically at it, and to note that the pole-rings on the wheelers are drawn higher than on the leaders, which is wrong; and that the pole-ring on the rear wheeler is shown flat on the collar, which could not be. I don't know, of course, your New-York style, but the highest-class London style would not allow any pole-rings at all on the leaders, there being obviously no use for them. I see you have headstalls to the wheelers, but don't use them. This I noticed also at several of the last London Drag Meets, but consider it false or bad taste in both. If not required, they should not be there. I see Mr. Gray-Parker does not show bearing-reins anywhere. Don't you use them in New-York? If not, why does he put bearing-rein hooks to his harnesses?

Yours very truly,

ROBERT BURGESS.

HOW TO FIT A DROP-POLE BUGGY GEAR.

CRITICISM OF S. M. H.'s LETTER.

EDITOR OF THE HUB.—DEAR SIR: I feel myself obliged to take up this subject again, in response to the article entitled "How to Fit a Drop-pole Buggy Gear" (May *Hub*, page 104), by S. M. H., of Columbus, O., whose suggestions are, I think, as far from practical as those published previously.

In the first place, the question is not how to build a buggy with a stiff pole, but how to make a buggy, fitted with the usual drop-pole gear, so that it shall carry the pole without dropping. Nothing is said by S. M. H. as to whether the buggy he speaks of is hung on elliptic springs or side-bars; but he seems to assume that it is on elliptics, and he proposes to accomplish the object aimed at by running a stay from the top of the

pole to the center of the spring-bar. This might do if the springs were perfectly rigid and never came down at all, but as this is unfortunately not the fact, and it will be readily seen that the motion of the springs will, to say the least, impart a very eccentric motion to the front end of the pole. Moreover, as he says, his arrangement would tend to pull the spring over, and his proposal to counteract this by the aid of the check-straps is absurd, for these straps are never tight when the buggy is loaded, and could therefore have no effect.

His other plan is away from the question. It is probable, however, that this might be made to work, provided the perch and other parts were made stiff enough to support the weight of the pole, but it would be a clumsy looking job at best. I still think the whole idea is impracticable.

G. W. K.

EXPOSURE OF A POPULAR FALLACY.

NEW-HAVEN, CONN., July 1, 1884.

EDITOR OF THE HUB—DEAR SIR: In the *Coach, Harness and Saddlery*, of March 15th, I find a very sensible editorial upon the relationship of employer and employé; but there is one fact the writer entirely ignores, which is, that a manufactory *cannot* be run as a benevolent institution. The laws of trade are fixed and arbitrary, and must be complied with, and business rules must be observed, or the manufacturer will soon go to the dogs.

Business is carried on for the express purpose of making money. No one would assume the care, risk and responsibility of a factory for any other purpose. Moreover, the profits of the carriage business (and we might include nearly all branches of manufacturing,) are so small that employers cannot do otherwise than to hire men at the lowest price for which they can be obtained, and sell their products at the highest price. This is the basis upon which business is established and conducted, and it cannot be otherwise, for even this extremely selfish method puts but a few pennies per day, from each workman, into the pocket of his employer.

I well know that the prevailing idea on this subject among wage-workers is, that they are being robbed, and that their employers might, if they chose, give them from fifty cents to one dollar per day more than they are now getting. Let me tell you how I got this fallacy out of my own head.

Several years ago I worked in a shop with a number of socialists, who were constantly telling us how greatly we were being robbed by our employer, and I verily believed it at that time. Our employer began life as a mechanic, had afterward been in business twenty years on his own account, employed about one hundred hands, and was then supposed to be worth about \$75,000, which represented the amount he had taken from the workmen,—or, to use the words of the socialists, the workmen had been robbed of this \$75,000.

Being a little anxious to know how much I was being robbed of every day, I used a little arithmetic, and to my astonishment found it to be but ten cents. At first I thought there must be some mistake in the figures, for I could not believe that we had been paid so nearly the sum that our labor had netted our employer; but a careful review of the figures proved them to be correct, and showed it to be a fact that, for every dollar our employer had paid us, he had not received from us the net value of one dollar and five cents. "Can it be possible," thought I, "that manufacturers are working on so small a margin of net profit?" There was no avoiding the conclusion in this case, and this manufacturer had been one of the most prosperous men in the carriage business. But very few had been equally successful, and where one had done better, twenty had failed. It was this positive knowledge that drove the idea out of my head that we workmen were being robbed by our employers; and, to my mind, it solved the problem why coöperative efforts in manufacturing were not more successful.

Now, if it is true that the net profits of carriage building do not equal five per cent. of the wages paid to the workmen, how can they pay higher wages, and where is the room for benevolence. How, in any way, can they be expected to do more for their workman than they are now doing. On the other hand, if it is *not* true, that can be easily proved by figures; and in this case, I hope some one will do it and show the fallacy of my claim, and show how easy it would be for employers to pay their workmen higher wages, and retire them on a pension when they become old and disabled.

Respectfully submitted by one who has occupied the position both of workman and employer.

W.

A PARIS thief, in opening carriage doors for ladies, invariably managed to take their purses, sometimes even their bracelets, and then made for the nearest police station, where he deposited them with his name, strictly according to regulations. He lived on the momentary gratitude generated in the owners on recovering their property; but at last a lady caught him, and he was given into custody.

HOW'S TRADE?

BULLETIN No. III: THE CONDITION ABROAD.

REPORTS RECEIVED FROM FOREIGN COACH-BUILDERS AND EXCHANGES.

WE have made no organized effort to secure the opinions of our foreign friends as to the present status and prospects of the trade in their sections; but the following extracts from letters received during the past two months, and from trade reviews appearing in our foreign exchanges, contain sufficiently large straws to denote the direction of the tide, and to show that the feeling of depression complained of by many of our American friends is sympathized in by most of their co-laborers in Canada, England, France, Germany and elsewhere.

CANADA.

BAD.—“Business is rather dull at present.”—HENRY WELCH, Baltimore, Ont.

FAIR.—“Business is fair,—not crowding.”—JAMES ALLEN, Burlington, County of Halton, Ont.

FAIR.—“I am now at Tilsonburg, Ont., where in future I would like you to send my *Hub*. I like the paper first-rate. Trade is fair.”—WM. GRASBY, Tilsonburg, Ont.

FAIR.—“I do only a small business, running 2 forges, but trade is fair and increasing as compared with previous years.”—S. MARSHALL, Kincardine, Can. (June 27th.)

VERY GOOD.—“Business has been very good with us this year. Inclosed you will find \$5 00, amount of two subscriptions as ordered.”—C. & J. A. LLOYD, Proprietors of Paris Carriage Works, Paris, Ont. (July 21st.)

GOOD.—“Trade has been good in this section, and still continues good. There is very little demand for village carts. We were six weeks without rain, until about the first of the present month. This will leave the farmers a long way behind in crops.”—G. W. ROBINSON, Carriage-builder, Kingston, Ont.

GOOD.—“Trade is good at present, and I consider the outlook favorable for a good season's business. I employ 18 to 20 men, run 3 fires, and build both heavy and light work. I also do a large repair business.”—L. DUHAMEL, Ottawa, Ont.

GOOD.—[Translated from French]. “The carriage trade here has been good this year, and is fair now. Last winter it was medium. I built 12 carriages and 10 sleighs. I make all kinds of carriages, and do considerable repairing. I employ 2 blacksmiths, 2 woodworkers and 1 painter.”—A. DESROCHERS, Henryville, Que.

VERY GOOD.—“I have had a very busy season so far, and there are good prospects ahead for the rest of the season. Cash sales are few. But I think business in the carriage line through this part of Ontario will be very good this year. I inclose my subscription. I am sorry I did not send it sooner, but better late than never.”—WM. LAMB, Menie, Ont.

BAD.—“Business generally is not very good with us. Last year's crops were very bad in this section, and we do not look for trade being any better until another harvest. There is the ordinary amount of repairing, of course, but new work is not in very great demand, except by the people who are not dependent on the crops.”—FAIRFIELD & WHITAKER, Oakville, Ont. (July 4.)

BAD.—“Trade is poorly fair, or bad would probably be the fittest word. I only worked one forge and have closed that up, and am keeping no smith this summer. In the way of new work I have built scarcely anything but buggies. Selling hand-built work is a miserable failure here. Prices are too low, and the country in this vicinity is in poverty by reason of drink. I hope you will get better reports from other places.”—HUGH C. HANNA, Athlone, C. W. (June 24th.)

FAIR.—“Business is fair to good. We work 2 forges, and in winter 6 men. This spring we have 8 men, and are building about 35 buggies and carriages and 8 farm wagons. The former are mostly ‘Dexter Queens,’ coal-boxes, and piano-boxes on side-springs. We are also building 2 phaetons and 2 surreys, two-seated, hung on Brewster springs; 1 Rice coil gear, 1 White side-bar, 1 Storm side-bar, etc. We expect to build 35 or 40 sleds and sleighs. We also do repairing. Our foreman, J. McWilliams, takes *The Hub*.”—BROWN BROTHERS, Carriage-makers and Dealers in Carriage Hardware, Danville, Que.

FAIR.—“Trade for 1884 is fair, though not as good as 1883, but that was an uncommonly good year—the best I have experienced since I started, 10 years ago. I work 3 forges and from 7 to 10 men, and build farm wagons, platform market wagons, beer wagons (after Jacob Sebastian's New-York styles), phaetons, Dexter Queen buggies, Armstrong ditto, Thomas gear ditto, Brewster side-bars, two and three spring piano-box buggies, farm sleighs and cutters, and, in fact, almost any kind of a vehicle, down to a stone-boat and wheelbarrow. Inclosed find \$3 for your *Hub* for one year, as I am lost without it, and I wish you all success in laboring to furnish the carriage trade with such a friend as *The Hub* is.”—W. T. MATHER, Mather's Corners, Keene P. O., Ont.

FAIR.—“Business with me is fair. I have now been getting *The Hub* for a good many years, although not in my own name; and not a few of my men, when starting for themselves, send to me for *The Hub*. I have one other New-York paper, the *Scotch-American*, and I am always going to quit both, but I cannot see how I can get along without them. Your valuable paper has more than paid me after all, for in small towns in Canada the carriage season is very short, and when we only keep one painter and one trimmer, if anything should go wrong with these men, there you are! and perhaps cannot get others in their place; so a boss must be able.”—J. B. McARTHUR, Carriage-Maker, Paisley, Ont.

VERY GOOD.—“We have a first-class plant of machinery, with an abundance of power, and employ from 15 to 20 men. Our probable production of finished jobs this year will be 150. We build only light work and do no repairing. Beside finished work, we build a large quantity of bodies for the trade. We commenced operations sixteen months ago, with the determination to build only first-class work, and we find that the demand for this is even greater than we anticipated,—so much so, that we have been working a great deal over time and are still unable to keep up with orders. On the whole, we have to report trade very good. The houses who handle our bodies almost exclusively are the Guelph Carriage Goods Co., for their Eureka gear; Warnock & Co., of Galt, McKinnon & Mitchell, of St. Catharines, Klover & Walker, of Guelph, also James Warnock & Co., of Galt, and others.”—COBER & BECHTEL, HESPELER CARRIAGE WORKS, Hespeler, Ont.

FAIR.—“I suppose you want to know how business is with me. Last year the fall wheat was a failure, and the farmers got into the blues over it. As if the carriage builder could help it any! At this time last year I had 6 buggies and 3 carriages on hand, and some 6 or 7 wagons, and very little prospect of selling, so I began to think that I was taking the blues. I didn't make a sale until the first week in July. I think the 4th of July warmed them up a little, for on that night I made my first sale of a buggy, and the next morning I made another sale, so by the 15th of August I had got rid of all my spring rigs, and made one or two ordered jobs after that date. In October and November I made up a lot of cutters and heavy bob-sleighs, but until the 7th of January I hadn't made a sale. On that date I made eight sales, and in four days I hadn't a rig left, and I had to go to work and make 2 cutters and a lot more bobs to order, and could have sold 3 or 4 more cutters if I had had time to get them up. During the winter I got up several wagons and a lot of iron harrows and hay racks. From Manitoba there is a good inquiry about rigs, but the farmers are a little timid to buy just yet, till they see how the fall wheat is going to turn out. If *The Hub* was \$12 a year instead of \$3, it would have more than paid me.”—THOS. LATER, Trowbridge, Can.

FAIR.—“The trade in this part is good enough, the demand being about the same as last year; but there is no money—all credit. I have recently sold 4 buggies, 2 double express wagons and 2 jack-wagons, beside repairing; but there are two other shops in this village beside my own, and one has sold more than I have. I have only 1 forge, and I employ in general 3 men besides myself. The buggies we build around here are common end-spring piano-boxes and side-spring work, also Concord boxes and Brewster side-bars. There are also the coil springs, which are imported, and three or four other kinds which are bought in Montreal, but I have not bought any myself: I buy my materials and make my own. For express wagons we use three springs, and no platform work is asked for, on account of being too high in price. Farmers around here would like to buy, but they do not want to pay what it is worth. They will offer about half the price, and you have to fight for the other, so you see it gives no incentive to a man to finish his work in good shape.”—ANON., Hemmingford, Ont.

NEW-BRUNSWICK.

VERY GOOD.—“In answer to your inquiry regarding the trade of the season, I would beg to say that I find it very good. I am running 2 forges and employ 8 men, and build mostly all light work, such as phaetons, whitechapels, piano-box buggies, Concord and express wagons. I find trade better this season than any previous year since I have been in business. I might here say that I very much enjoy getting *The Hub*. I think every carriage-maker ought to have it.”—A. C. ATKINSON, Newcastle, Miramichi, N. B.

ENGLAND.

BAD.—“Business is not good here.”—R. B., London, Eng.

FAIR.—“Business is not over-brisk.”—ANON., Brighton, England. (July 2d.)

BAD.—“Business in this country continues very dull. There is a dearth of news.”—ANON., London, Eng.

VERY BAD.—“I am sorry to say that trade here in London is very bad.”—ANON., London, Eng. (June 14th.)

BAD.—“Trade generally has been rather slack up to the present this year.”—BRAINSBY & SONS, Coach-builders, Peterborough, Eng. (June 26th.)

GOOD.—“Business is good with me at present. I inclose 12s., the amount of subscription for *The Hub*.”—H. GRIFFITHS, Carriage-builder, Pendleton, Eng. (July 9th.)

BAD.—“Grumblings are in good supply; money short, with good demand; sales difficult and slow.”—SADDLERS, HARNESS-MAKERS AND CARRIAGE-BUILDERS' GAZETTE, London, Eng. (July 1, 1884.)

VERY GOOD.—“Business is very good here this summer. I receive *The Hub* regularly. I send you post-office order for 6 shillings, for the coming six months.”—SAMUEL UDALE, Uttoxeter, Staffordshire, Eng. (July 2.)

GOOD.—“Business with us is good. We inclose post-office order to the value of 12 shillings, amount of subscription to *The Hub*, which we hope to receive in due course.”—ROCK & HAWKINS, London and Hastings, England; Coach-builders to Her Majesty the Queen.

VERY GOOD.—“Trade, I am glad to say, is very good with me, but I do not think it is good generally throughout the country. I have been working full time all winter. I am always glad to receive your journal, being always sure of finding a wrinkle of some sort in it. Please accept my best wishes.”—H. A. HAMSHAW, Coach-builder, Leicester, Eng. (June 25th.)

VERY GOOD.—“We are exceedingly busy. We have lately added the implement trade to our business, and brought out new ideas and improvements which are taking well. We are just now putting up an engine of more power, to cut our heavy log timber, and are running our men seven days a week. Please accept our best compliments.”—R. & I. O. TREVETT, Coach-builders, Trevett, Melplash, Bridport, Eng. (June 21st.)

BAD.—“The aspect of the London carriage trade at the present time may be known by the few sales and low prices obtained for carriages. At an auction of two hundred and fifty carriages, only fourteen were sold, and these at very low figures. At another well-attended auction, hansom cabs and four-wheelers, fit for use, were sold at £4 each, and under.”—SADDLERS, HARNESS-MAKERS AND CARRIAGE-BUILDERS' GAZETTE, London, Eng. (June 1.)

SCOTLAND.

VERY GOOD.—“Trade is very good, and promises better. We have a number of orders to get out before grouse shooting begins. Of course, in this northern part of the kingdom, we cannot turn out by the hundreds as on your side, but if ever you come this way we will be delighted to see you and give you a highland welcome. I have the pleasure of inclosing my subscription for *The Hub*.”—ALEXANDER NAUGHTY, Coach-builder, Dingwall, Scotland. (June 14th.)

FRANCE.

VERY BAD.—“What with the dullness common to the summer season, coupled with the results of our recent financial troubles, and the results of the cholera scare, which latter has not only prevented the usual influx of strangers, but caused an unusual number of citizens to leave the city, the Paris carriage trade may be set down as exceedingly dull.”—ANON., Paris, France.

BAD.—“The Commission of Inquiry appointed by the Chamber of Deputies to ascertain the causes of the present depression of trade in Paris, has just made its report. * * * *

During the forty years that the writer of this review has lived in Paris, some thirty coach-builders in business in this city have made fortunes, whilst more than one hundred have become bankrupt, each with losses averaging about £4,000. Evidently these men had distributed amongst their workmen considerably more than the profits of the business. Nearly all the witnesses desire government protection for their particular trade, accompanied by reduced taxation. Here is a difficult question to deal with.

The Coach-Builders' Syndical Chamber of the Department of the Seine, its representatives being Messrs. Huret-Belvalette, Quenay and Jeantaud, stated that the carriages of the best Parisian firms were bought by bankers, merchants, stock-brokers, commission agents, large land-owners and manufacturers. The depression from which Parisian carriage-building is now suffering was attributable, 1st, to the failure of the *Union Generale*, which is still affecting a large number of business men; 2d, to a serious diminution in the income derived from land, of which the productive value has been much impaired by the ravages of the phylloxera, by a succession of bad harvests and by the enhanced cost of agricultural labor; and 3d, there has been a considerable falling off in the number of carriages exported from France. * * * *

The delegates wisely abstained from propounding a panacea instantaneous in action and infallible in its results, but they profited by the opportunity to bring under the notice of the committee the burdens and restraints which at present prevent the development of the carriage-building industry in France. These are: 1st, the exorbitant charges of the French railway companies for the transport of carriages, the rates being four times as high as those in neighboring countries, notably in England and in Belgium; and 2d, the duties on French carriages entering foreign countries. These duties are in many instances excessively high and frequently unfairly apportioned.”—GUIDE DU CARROSSIER (March-April), Paris, France.

BAD.—“For quite two years past trade has suffered an industrial and commercial crisis that has weighed heavily on all its industrial enterprises, and it is also worthy of remark that other countries are complaining quite as loudly as we are, including England, Germany and America, not to mention Austria, Belgium and Switzerland. The situation threatens to develop into a public calamity. The largest interests in the United States are feeling it. There, business has fallen off, exports have diminished, and imports are nearly at a standstill. What are the causes of this state of affairs? We account for them thus: first, excess of production, followed by the fierce competition felt in every country because of such excess. Those countries in which the

workman is the most poorly paid, for instance Germany, have been able to produce most cheaply, and to inundate Europe, and thus depress prices. The crashes at Vienna and in Paris have also operated to withdraw large sums from commerce and manufactures. These causes have brought about a very grave situation. The workshops are filling up with products, and the stores are not getting rid of their stocks. Commercial life is enfeebled thereby daily; and it is certain that this cannot be prolonged without the direst results to every one. Is there any remedy? Can France reconquer the rank she formerly held in the markets of the world? Yes, because she has marvelous skill, treasures of science, and incalculable productive resources, not possessed by other countries. Let our producers arm themselves for the struggle, go to distributing points, study the wants of buyers, and conform to their ideas, by manufacturing goods to suit the special market. Besides, the agitation for increase of wages now going on in Berlin, Leipsic, Austria, etc., makes the struggle easier. Foreign workmen by demanding higher wages will help to harmonize the Economic Situation, and the French can fight on more equal terms. To do this, what is necessary is Energy! Energy!! Restless Energy!!!—[Translated from] LES ANNALES FRANÇAISES, Paris, France (May 31st).

HOLLAND.

BAD.—“You ask how business goes with us. We must answer you that there is a general *malaise* in this country this year in all business. We never received the *Hub Almanac*. Wherefore not? Please send also to us for our new subscription the copy of Gray-Parker's drawing. Yours very truly.—BOERTJE & Co., Fabrikanten van Rijtuigen, Tuigen en Zadeln,” The Hague, Holland. (July 11.)

GERMANY.

BAD.—[Extract from address by Herr Liebknecht, member of the Reichstag.]—“Waive rhetoric! You wish me to tell you what is going on in Germany. The proverb says, ‘Everyone should sweep in front of his own door.’ Let us regard the industrial revolution now going forward in Germany. Everywhere we seem to be satisfied with the present; but it is wrong to suppose that the growth of the German revolutionary movement is the work of a few individuals. It is, on the contrary, the result of a situation that is independent of our efforts. The decomposition of society in Germany is making giant strides. Numberless workmen and small traders are being ruined each day. The number of failures is immense. The crisis of recent years seemed to be mending. It is an error. We are on the eve of an economic crash that will overtop any we have up to the present experienced.”—[Translated from] LES ANNALES FRANÇAISES, Paris, France (May 31st).

BAD.—“Manufacturers of carriage bodies and woodwork in the dukedoms of Altenburg and Brunswick complain that the manufacturers of bodies and woodwork in the cities of Merane, Glambau, Döbeln, Waldheim, and especially Hartha, deliver their work for such extremely low prices to manufacturers and private parties, that it is almost impossible now to earn one's salt for making a plate of soup; and that, in consequence of low prices, the manufacturers in the above-mentioned dukedoms are compelled to turn their attention to other occupations. Cheap work is also manufactured in the cities of Gössnitz, Halle and Brunswick. The fact that cheap work is manufactured in the city of Erfurt was known to us a long time ago, and we received many inquiries to ascertain by whom this cheap work was supplied. Persons who are in want of such cheap work should make themselves known. It would pay, as there would be no lack of offers. Another carriage manufacturer, suffering from the effects of cheap work, complains to the editor that in the city of Lemgo, hands have to work longer hours and more strenuously than in any other place in Germany, but the wages paid are among the lowest in Germany. A married foreman gets 15 marks per week [a mark is about 24 cts]. The boss trimmer in the factory of Pl. has 4½ thalers, or 13½ marks. It is not surprising, with such wages paid, that the work can be gotten up cheaper, but other manufacturers in the surrounding country are suffering in consequence thereof. The question asked us is, how is the evil to be remedied? The solving of this problem belongs to the social reformers.”—[Translated from] MEITINGER'S DER CHAISEN UND WAGENBAU ZEITUNG, Munich, Bavaria. (May 1st.)

NEW-ZEALAND.

BAD.—“Business continues very dull, but we are in hopes the Exhibition will be the means of improving trade. We are to exhibit purely New-Zealand manufactures and productions, and see if we cannot educate the people here to use the home productions instead of the imported article. We have imported this place nearly to death, and must try and make an alteration. This is a splendid country, but it has been fearfully abused.”—ANON, Christchurch, N. Z.

BAD.—“I may report trade generally as exceedingly dull, to which the carriage trade unfortunately is no exception. The *Hub* copies came duly to hand last mail. I am very pleased to acknowledge the continual improvement which appears in each number, and trust your enterprise may meet with the return it merits. I have also received your ‘Wagon Chart’ and ‘Studies in Scrolling,’ both of which will prove of interest and value to me in my business.”—MARK SINCLAIR, Coach-builder, Great King and St. Andrew's-streets, Dunedin, and Wear-street, Oamaru, New-Zealand (May 23, 1884).

BAD.—“Am sorry to have to report business very dull, but I am in hopes of an improvement after the harvest, which is now in full swing, with an abundant crop. I am sorry also to say that I did not receive my *Hub* by the last mail, but I am in hopes to do so by the next incoming mail, and that it may contain something pleasing. I forward to you by this mail, the *Lyttelton Times* and the *Press* of this city, describing the opening ceremony of the New-Zealand Industrial Exhibition, so if you wish to make any comments on it in *The Hub* I shall not feel offended.”—A. G. HOWLAND, Coach-builder, Christchurch, New-Zealand (March 1, 1884).

BAD.—“Trade is dull just now, business in New Zealand generally being in a state of depression, but we have had a splendid harvest this season, though very late, and the frozen mutton is making its mark in London. Please find subscriptions inclosed, with another for Vol. XXVI of *The Hub*. My fellow-subscriber is Mr. John White, who has just returned from a visit to the States. He was one of the party who went from London, and from New-York they went to Jas. Cunningham & Son's in Rochester. He intends writing to you himself shortly. I asked him if he would join me in subscribing, and he was very glad to do so. I was speaking to a retired coach-builder yesterday, who took in *The Hub* ten years ago; when he saw the latest he was astonished. He said the improvement was immense, and that it was a marvel of cheapness. For my own part, the more *Hubs* I get, the better I like them.”—DAVID STANSFIELD, Coach-builder, Glen Mornington, Dunedin, New-Zealand (May 15).

* * *

Judging from the intimations conveyed by the above-named straws, it would appear that our American carriage builders are having a luxurious time of it, as compared with their suffering brethren in England, France and Germany. It looks as though we might expect a large influx of skilled mechanics from those countries in case this state of things continues much longer. We do not particularly need them at present, but we are going to!

A YOUNG author proposed to one who had years and fame, that they should together make a book. “What!” said the surly old fellow, “You and I? Would you hitch a horse and an ass together? Instantly the young wit replies: ‘How dare you, sir, call me a horse!’”



NEW-YORK CITY AND BROOKLYN.

REMOVAL.—Vanhorne, Griffen & Co., of New-York City, have removed from Park Place, where they have been so long established, to more commodious quarters at 131 Franklin-st.

“THAT FLEETING SHADOW.”—“*The Hub* has succeeded in catching a picture of that fleeting shadow, Lazier, and has published it as a terrible example of what becomes of amateur varnish salesmen.”—Coach Painter, for July.

PERSONAL.—Prof. Gribbon is taking a vacation at Niagara Falls. His school mail, in the meantime, awaits his return. Corresponding pupils who do not receive replies during the coming month, will please understand that all the teachers are now off duty.

OUR PAINT-SHOP DEPARTMENT THIS MONTH will be found particularly timely and instructive, we think, being composed almost exclusively of questions and answers based upon actual correspondence with our painter friends during the past thirty days.

HIGH ART LETTERING.—Our old-time friend, Mr. Peter Bertsch, of 374 Broadway, Brooklyn, N. Y., is very busy, and is extending his premises. As a painter, he has always ranked among the elect, and at present he is not only turning out some very handsome work, but a large amount of it.

PERSONAL.—Mr. John W. Britton is still at Saratoga Springs, and has not fully recovered from his recent illness; but he is more comfortable than at the time of our last report, and is lending valuable aid to the Committee in their preparation for the fall term of the Technical School.

PERSONAL.—C. Y. Turner, of this city, has just completed a portrait of Mr. Howells, the head of the well-known cloth house of H. C. Howells & Co., which is equally noteworthy for its striking likeness to the original, and its thoroughly artistic treatment. Mr. Howells is represented as seated before a chess-board.

THE TECHNICAL SCHOOL MUSEUM, in this city, has received a thoughtful and welcome gift from Mr. S. R. Bailey, of Amesbury, Mass., in the form of one of his latest sleigh bodies. In the summer absence of the School Committee, the Secretary begs to take this means of publicly acknowledging and accepting Mr. Bailey's present.

FEW FAILURES, and no large ones, have occurred in the carriage trade thus far. Among those reported last month by *Bradstreet's* as in trouble, were H. A. Hoffman, Indianapolis, Ind., assigned; Edwards Bros., Melrose, Mass., filed petition in insolvency; D. Towle, Kingston, N. H., attached; and Scofield & Cooper, Ovid, Mich., assigned.

PERSONAL.—Mr. Chas. Hildebrand, Superintendent of the Cunningham Carriage Works, Rochester, N. Y., visited New-York City during the first week of last month for the purpose of inspecting the facilities offered in the College of the City of New-York, on 23d-st., for instruction in mechanics and mechanical and free-hand drawing. He was accompanied by Prof. Gribbon.

THE TWO PROSPECTIVE PRESIDENTS.—“The Western carriage-builder, as a rule, thinks and talks more about who will be the next President of the United States, than who will occupy the chair at the close of the session at St. Louis in October.”—Coach Painter, for July. That's true; and happy 'tis, 'tis true, for it shows the confidence the Western members have in the present management of the Association's affairs.

PICNIC OF THE CARRIAGE-MAKERS' GUILD.—The tenth annual afternoon and evening Picnic of the New-York Guild of Carriage-Makers was held at Lion Park, New-York City, on Saturday, July 19th; and proved even more enjoyable than usual. The present officers of this worthy and energetic organization include James Donnelly, President; John H. Donahue, Vice-President; James Herdman, Treasurer; Thos. Dent, Recording Secretary; and Jas. Fay, Financial Secretary.

THE NEW-YORK CITY CARRIAGE MARKET.—Coach, Harness and Saddlery, in its edition of July 5th, epitomizes the present situation as follows: “Buyers are scarce, and visitors to the various warerooms appear to be impelled more by curiosity than by desire to purchase. The sales of fine work have been mainly confined to two or three houses, and to half-top vehicles. The road-wagon trade has been unsatisfactory. Early in the season trade was active, but since the middle of April very little has been done. Broughams sold well until within a month past; since then there has been little demand for them. There has been no time in many years when the demand has been confined to so limited a number of styles. Landaus, broughams and victorias represent four-fifths the sales made of heavy vehicles.”

TRADE NEWS IN NEW-YORK CITY AND BROOKLYN.—We devoted the third week of last month to collections in New-York City and Brooklyn; and, while doing so, extended our visits to many of the leading carriage and wagon makers and supply houses, including J. B. Brewster & Co., R. M. Stivers, Brewster & Co., of 47th-st., Healey, Williams & Co., Dull & Brown, Joseph Irving, Calvin Witty, John L. Kipp, Wm. Freeland, A. S. Sherwood, Ten Eyck & Kent, C. C. Reed & Co., Moller & Schumann, Murphy & Co., John W. Masury & Son, Valentine & Co., F. W. Wurster, and others. Judging from the reports gathered during these calls, the present condition of the local carriage and wagon trades would seem substantially as follows: Trade in both cities is certainly languid. Of course, it is never brisk just now, the only demand being for vehicles suitable for summer resorts, and country use generally. The vision of a customer in repositories is as rare as most visions. On the other hand, the factories are by no means idle. Repair work is reasonably active, and the note of preparation for fall may be described as energetic. This is true of many shops building high-grade work. The medium classes of work are rather more blooming, if anything,—possibly owing to the fact that slimmer purses incline more favorably to low prices. Among the wagon and cart builders there is a good trade, a few being actually quite in arrears to their orders. Altogether, there seems no actual necessity for any builder imitating the tactics of the prophet Jeremiah.

THE MIDSUMMER ISSUES OF THE "GIANT MONTHLIES," *Harper's* and the *Century*, are worthy compeers in luxuriousness, the former containing 162 pages, and 64 illustrations; and the latter 160 pages and 38 illustrations. The former decidedly "lays over" the *Century* this month, both in number and attractiveness of its engravings, and a comparison of the two frontispieces is particularly in its favor. Either, however, is worth four times the price. To merely mention their leading attractions would occupy more space than we have at our disposal, and we will only say that we hope every carriage-maker will secure both and study them for himself. American publishers offer the public no other means of instruction in current art and literature that is more appetizing or less expensive. The Editor of the *Atlantic Monthly* is conspicuous by his absence from the August number of that readable journal. Its articles are fairly attractive; but several curious errors are observable which would scarcely have passed Mr. Aldrich's observant eye unchallenged. He surely would not have allowed Edith M. Thomas to make the idle wind "pipe in the keyhole and sough in the boughs of the roof-tree" (page 270). This word roof-tree, by the way, is allied to axletree and whiffletree, whose derivation we explained in a recent number, showing that the word *tree* in such connections means merely a stick of *timber*,—but dead, not live timber. We trust also that Mr. Aldrich would have stayed the unprofessional hand of Mary Beale Brainerd's physician who, "when the hemorrhage was stopped, administered an anæsthetic" to Dinky (page 211). Dr. Holmes may be able to suggest what word was intended. We won't attempt to guess, but it surely couldn't have been *anæsthetic*.

NEW-YORK STATE.

ASHES STILL.—Geo. D. Stine's spoke factory, at Weygatchie, N. Y., which was destroyed by fire last January, has not been rebuilt.

A NEW MACHINE for setting boxes and boring hubs, that has many claimed points of excellence, is made by the Eureka Hub Borer and Box Setter Mfg. Co., Syracuse, N. Y.

PERSONAL.—Mr. James Cunningham, of Rochester, N. Y., is slowly recovering from the effects of the severe shock he suffered last spring, and is now taking a vacation with his family at Saratoga Springs.

REBAPTISED.—The popular Storm spring that has, true to its name, raised a tempest among springs, is no longer made by the Whitney Spring Co., as the corporate title has been changed, and will be known hereafter as the Edward Storm Spring Co., Limited.

PATENT DECISION.—The Binghamton (N. Y.) *Daily Leader* of July 10th, states that notice has been received of a decision in the patent suit of Crandal, Stone & Co. against The Parker Carriage Goods Co., in favor of the former. The suit was an alleged infringement of patent on buckle-loops. The case was tried before Judge Coxe at Canandaigua, N. Y.

A NEW AXLE-BOX.—The wrought-iron box is a great improvement over the cast box, as all will admit; and now, Messrs. Guthrie & Clifton, of Buffalo, N. Y., have invented and are making a forged iron and steel box that is not only light and strong, but turned absolutely to gauge and true, having an inside surface like glass, and a perfect taper inside and out. We have seen the box, and join our commendation to that of others more practically conversant with the subject of axle-boxes. It will be a "go," we think.

NEW-ENGLAND.

PERSONAL.—Mr. Chauncey Thomas, of Boston, Mass., returned on July 3d from his three months' sojourn in Europe. He enjoyed the trip, and his health is greatly improved.

GEO. W. KERR, of Bridgeport, Conn., has taken a partner, and the "Bridgeport Cart" irons are now manufactured by Kerr & Reid, who report that their new specialty has a "very promising outlook." We think they have a good thing. Mr. Henry Willets, of Chicago, thinks so too, and he has added the Kerr Cart to his line of work.

C. E. GUNNISON & Co., of Merrimac, Mass., write as follows: "Our business this season is very good. We have been filling orders for the past three months, and still they are coming in. We are working 3 forges, and building medium-grade work. We turn out 200 vehicles annually."

OUR LAST MONTH'S SLEIGH CHART is keeping Mr. S. R. Bailey's pen busy, and we hope it will also keep his shops actively employed. In a letter dated July 12th, he says: "I think your sleigh chart containing my designs will be a nice thing for me, as I am now receiving letters of inquiry faster than I can answer them."

PRIZE CONTESTS AS SELF-EDUCATORS.—Mr. F. W. Tucker, of Boston, Mass., writes to us as follows, under date of June 6th: "Please accept thanks for subscription to *The Hub*, received from Prize Committee. I cannot be otherwise than satisfied with the result, as the drawing I made was the first working drawing,—in fact the first inch-scale drawing, I had ever made. It was hard work, but what I thus learned in studying and measuring carriages, fully repays me for my trouble. As a self-educator for beginners, a prize contest has no equal."

HIS OWN BOOM.—In this issue, Col. Saladee, of Torrington, Conn., directs attention to his new "Duplex" spring. The Colonel has established his factory at Birmingham, Conn., and is starting his boom for the campaign of 1884-5, he states, with the most flattering prospects of making his "Duplex" a successful power in the trade. This new specialty has been before the public less than one year; but, at the time we last heard from the Colonel, he was thirty days behind his orders. The "Duplex" is a new and improved structure, upon an old principle, but one that presents features of novelty and advantage that commend it to favorable notice.

MIDDLE STATES.

FIRE.—Jarrett & Worstal's spoke and fellow works, Doylestown, Pa., were slightly damaged by fire on July 8th. Loss, about \$100, fully insured.

PERSONAL.—Mr. Wm. D. Rogers, of Philadelphia, has been taking a vacation at Saratoga Springs, N. Y., stopping at the Grand Union Hotel.

FIRE.—Wm. Huntsman's carriage factory, wareroom and residence, Stroudsburg, Pa., were destroyed by fire on July 25th. Loss, between \$8,000 and \$10,000.

PERSONAL.—Mr. R. H. Lee, foreman blacksmith with Mr. Wm. D. Gardner, of Philadelphia, and winner of one of *The Hub's* first prizes in the recent competition, visited New-York and *The Hub* office on July 9th.

DIED, on the evening of Tuesday, July 8th, Philip D. Schmidt, dealer in carriages, of No. 94 W. Fayette-st., Baltimore, Md., in his 52d year. Mr. Schmidt was born in Germany, but came to this country when a child. He learned the trade of baker, and pursued this calling until the breaking out of the war, when he undertook heavy Government contracts in hay, which proved highly profitable. He was an active and successful handler of carriages, which business he entered in 1869; and he numbered among his friends many prominent members of the trade, several of whom were present at his funeral, including among the honorary pall-bearers: Messrs. John Young, of Washington, D. C., J. H. Riddlemoser, H. Bowers, and several friends from Lancaster, Amesbury, Philadelphia and New-York.

PERSONAL.—Mr. Frank Sparks, the representative of Howard M. DuBois, of Philadelphia, visited us on July 12th. He reports business in the sections through which he has recently passed, namely, Pennsylvania, New-Jersey, and New-York, to be "very fair, and the DuBois wheel works full up with orders to mid-autumn."

STIFF DRAW-BARS AND EVENERS.—We have the pleasure of inviting attention to an illustrated letter on this subject (page 341), by Mr. Fairman Rogers, of Philadelphia, written from his summer home in Newport. Mr. Rogers is a member of the Coaching Club, and a veteran whip; and his contribution to the Shepard-Britton debate well deserves the attention of all who are interested in the points at issue.

FIRST IN THE FIELD.—Messrs. Liggett & Day, Pittsburgh, Pa., have materialized into a firm of exhibitors' agents, and they propose to go to the World's Fair to be held in New-Orleans next winter, and carefully look after the interests of any manufacturers who shall confide exhibits to them. Both gentlemen are well known in the trade, and we believe that those who entrust them with goods will be well satisfied with their stewardship, and the account they will render of the same. Success to them!

A CAB COMPANY'S TROUBLES.—The Camden Coach Company is in dire straits. About a year ago Loring W. Sparks, a young man living on Federal-st., had the sight of one of his eyes destroyed by being struck by the whip of a driver of one of the company's coaches. He entered suit in the county court for damages at \$10,000, and obtained a verdict of \$5,000. The company appealed to the Supreme Court, which tribunal, however, sustained the finding of the lower court. The company then declared that it owned no property, and on examination it was found that William S. Scull, president of the concern, held a judgment of \$5,000 against it, and that the company's unencumbered possessions amounted to only \$1,500. The plaintiff's counsel then carried the case before the chancellor upon an application for the appointment of a receiver, and the chancellor granted the application.

P. H. PEIFFER, who has been in the carriage business many years at Chambersburgh, Pa., is busy on both new and repair work. He not only has a good home trade, but also sends his work into the South, where he bears an equally good reputation as at home. He recently shipped a particularly handsome milk wagon to Mr. Ellie Maloy, Winchester, Va. The doors in the sides, extending from the floor to the top, work on a track, and slide back instead of opening out. The top half of each door is a window, which also slides back in the door, thus giving the driver an opportunity of passing the chalky fluid out either through the door or window. The inside is provided with stands for the cans to rest upon, and is finished in a handsome manner. The exterior is elegantly carved, and the panels are artistically painted. The lettering on the sides was done by Mr. J. Bickley. M. Peiffer is also preparing for shipment a four-passenger carriage ordered by a gentleman in Lexington, Va.

WHY ONE TRADE REPORT WAS LATE.—Mr. Saml. G. Warner, treasurer of the Alfred E. Smith & Warner Axle Co., of Wilmington, Del., writes as follows: "Your kind invitation to give status of trade deserved more prompt consideration, and would have had it but for the past two weeks of chaos, caused by tearing out our engine and boiler, replacing them with new of treble capacity, and building new heating forges and setting new hammers, lathes, etc. These improvements became a crying necessity, owing to our utter inability to do justice to our patrons in promptly serving them. Trade with us, and consequently with our patrons, seems to be fairly good, especially in work of a good honest grade. Orders are not for large shipments, which means that they are not loosely given, but only for needed supplies, which we think always indicates a healthy pulse. Since starting in to make the A. E. Smith and Carswell and Vandenbraak (regular half patents and tapers, plain and improved), we have had no salesman, but have depended entirely upon the virtue of our goods and the aid of the trade journals, in which latter we can trace more than your proportion, counting cost."

WESTERN STATES.

EUREKA GEAR.—W. A. Paterson, of Flint, Mich., reports business good, especially in his patent Eureka gear for buggies.

PERSONAL.—Mr. E. D. Moore, the genial representative of the Royer Wheel Co., Cincinnati, O., is making his summer home at Camp Grounds, Loveland, O.

QUINN & WEBSTER, of Little Rock, Ark., say: "Our business is dull at present in merchandise, but in the factory we employ about 15 hands, and have more than we can do."

THE ROBERTSON CARRIAGE CO., of Denver, Col., report trade good, with 18 men and 2 forges employed. They add: "We build only buggies, phaetons and surreys of first grade."

ASSIGNMENT.—Scofield & Cooper, of Ovid, Mich., one of the largest carriage manufacturing firms in that State, made an assignment July 21st. Their liabilities are stated at about \$100,000, and assets at \$75,000.

DOING WELL.—Since the introduction of his Silvester patent tire, Mr. C. B. Clarke, St. Louis, Mo., has had uniform and gratifying success. The express companies have adopted it, and others are fast finding out its merits.

FIRE.—A fire in St. Louis, on the morning of June 29th, destroyed a large warehouse filled with agricultural implements, wagons, etc., owned by Kingman & Co., manufacturers, of Peoria, Ill., whose loss is reported at \$50,000; insurance, \$20,000.

REMOVAL.—Mr. J. F. Riche has removed from South Eastern, Ind., to Rockville, same State, where he has opened a new carriage-shop, and proposes to build a good grade of work. He says: "I wish also to build some styles not yet found in the usual snide buggy trade."

WM. H. STEINBRECHER, of Detroit, Mich., reports as follows under date of July 8th: "Business with us has been very dull, but the outlook is much better now. We are making a number of the Steinbrecher patent sleighs to order, and have a large number in stock, and things are looking good."

A CHEERFUL LETTER.—"The carriage trade for the month of June and the first week of July has been fair, both in new work and repairing, and a good fall trade is anticipated. The crop prospects hereabouts are the best ever known; winter wheat all harvested in good shape, and an immense corn crop expected."—B. MILLER, Carriage-builder, Paola, Kan. (July 14th.)

IN ELMORE, O., the carriage trade is reported rather dull, the poor crops of last season being the principal cause. The firm of Heckman & Foster has been dissolved, Mr. Foster going out, and leaving the business to Mr. H. Heckman, who builds both light and heavy work. He is having plenty of work, but at low prices. Moor & Sander do a good business in heavy and light work, but the season is a little off with them as yet.

L. FRANK CLARK, carriage and sleigh-builder, has been located at Mason, Mich., for seven years past, and his shop now ranks second in importance in the county. He runs 3 fires, with Lancaster blowers; and reports an increasing trade, with sales 25 per cent. in excess of last year thus far. He builds nothing but fine light work. Mr. Clark is a self-made man, and shows an honest and proper pride in his success.

THE EXCELSIOR SEAT CO., of Columbus, O., write: "Business with us through May and June was good."

THE MCFARLAN CARRIAGE CO., of Connersville, Ind., report as follows: "Our business is very good,—better than last year. We will sell about 1,500 buggies and carriages this season."

G. M. RAYMOND & SON, of Dayton, O., report business "only moderate in comparison with former years." They employ 2 woodworkers, 3 blacksmiths, and 2 helpers, and build principally heavy and ordered work, besides repairing.

HOME FROM EUROPE.—Mr. Chas. E. Morrill, the Chicago representative of Valentine & Co., returned from Europe on July 6th, together with his wife and daughter. He enjoyed the trip, and is now making active preparations for the fall campaign.

MCCOLLUM & SONS, of Aurora, Ill., make the following trade report: "Our business is very good, 25 per cent. better than for 10 years past. We have 15 men at work the year round. Our trade for two years past has been principally on road carts. Our carriage trade is fair."

"SPLENDID."—Frank S. Kelly, painter with Cornell & Co., of Kalamazoo, Mich., writes: "Business has been splendid since last December, until a short time ago, and it is fair now." Sorry we couldn't have had this item in our last number. It would have helped to pull up the average.

HOW IS TRADE?—Anderson, Harris & Co., of Cincinnati, O., have sent out a neatly printed circular letter to all their customers and correspondents, asking "How is trade?" According to the information received, they will govern their fall output. This follows the policy adopted by *The Hub*, and will supplement the very full returns on this subject which we have recently laid before our readers.

JOHN CRETORS, of Leavenworth, Kansas, writes: "I have to report sales dull, though we are working on some orders, and at fair prices. I wish the conventions and Presidential elections were over, and never more to occur, if we have to suffer such depressions in business as a consequence of their occurrence,—providing that is the real cause, as many assert. I wish *The Hub* all success!"

THE SELLE GEAR.—We have received from the Cleveland Carriage Bow Co., Cleveland, O., a new descriptive circular of the Selle Gear. Especially noteworthy is the raised circle gear shown on the third page. It is well adapted to city work, sustaining loads of from 1,500 to 3,500 pounds. The gear for stiff pole is also a nice piece of work, its construction being very simple and strong; and when shown at the last Carriage Builders' Convention, it attracted very favorable comment.

FIRE.—The machine-shop of the works of Silver & Deming Mfg. Co., at Salem, O., manufacturers of hub-boxers, spoke-tenoners and other special machinery for carriage-builders, was destroyed by fire on July 3d. It is supposed that the fire originated in the paint-room, by spontaneous combustion. The fire throws out of employment 140 men. The loss is estimated at \$75,000, with an insurance of \$59,000. We were happy to learn, by a communication received from the Company under date of July 5th, that their wareroom, foundry and patterns were saved, and that, as soon as the insurance adjusters could adjust the losses, they would be prepared to fill orders from wareroom stock to the extent of their ability, and that new machinery would soon be put in operation.

NEW MACHINES.—The Egan Company, of Cincinnati, O., have just completed several newly designed machines of special interest to a large number of woodworkers on account of the many fine points embodied in their construction. Among the number is their fast feeding special flooring machine, which will turn out a first-class quality of flooring, in either hard or soft wood, at the rate of 100 lineal feet per minute. This machine is provided with three pairs of large feeding rolls, and it will work stuff 9 to 14 inches wide by 3 inches thick, finished sizes. Their new self-feeding rip-saw is well adapted for use in any factory where a large amount of ripping is to be done, as the work performed is not only much more rapid, but smoother and evenner than can be done by hand labor. The Company state that they have already placed several of the above-named machines with parties who had thoroughly canvassed the market, and who finally decided on The Egan Company's make.

NEW SPOKE LATHE.—J. A. Fay & Co., of Cincinnati, have perfected and are now selling a new automatic Blanchard spoke-turning lathe that is described as follows: The shafts and bearings are especially large, and the gears are designed for the very heaviest and hardest kind of work. The cutter-head is mounted in a carriage, traversed upon planed ways across the path of material to be cut, by means of a heavy screw, so arranged that the feed is changed from fast to slow, as the cutters approach the large end of the spoke, and then the feed is automatically released, the carriage returning to its former position ready for the removal, and the insertion of the unturned spoke. The vibrating frame is of peculiar construction, the cross-bars being tubular, and uprights secured to a rock shaft at the bottom, with provision for end adjustment to suit varying lengths of spokes. The gears for actuating the spoke and pattern are mounted upon the vibrating frame, and so arranged that when the spoke ceases turning, the centers stop at the determinate point, ready for the next spoke. The cutter head is of new construction, formed of a solid block with heavy forged steel cutters, secured in milled seats, which can be quickly taken off and replaced to the exact position. Friction rolls in the cutter-head carriage relieve it of friction.

A MAMMOTH FOUR-IN-HAND.—A correspondent at Milwaukee, Wis., in a letter dated June 9th, gives the following description of a vehicular novelty. He says: "While visiting Detroit, Mich., recently, I saw a rig that was such a departure from the usual routine of wagons that I think a description of it will interest your readers. As a four-in-hand it was assuredly a success for the purpose intended, though it is doubtful if it will become the rage among the upper-ten-dom. The axles were of iron, $4\frac{1}{2} \times 4\frac{1}{2}$ in., and alone weighed 1,300 lbs. The track was nearly 8 ft., from out to out. The wheels, when finished, weighed over 600 lbs. each. The hub was 18×22 in., and the spokes $5\frac{1}{2} \times 3$ in. at the hub. The wheels were about 3 ft. in diameter, with 12 in. tread, each wheel requiring two tires, $\frac{3}{8} \times 6$ in. The reach consisted of a plank 4 in. thick and 12 inches wide, and the tongue is 8 inches square at the biggest part, and about 3×5 in. at the end. Nobody is likely to suppose that this rig was intended for 'my lady' to take her Sunday afternoon airing in, but it is to be used for the equally important purpose of moving large boilers, and it has already carried one weighing 32 tons without trouble. If any builder of pleasure carriages would like to adopt the style, I have no doubt that the builders, Messrs. Belnap & Prout, of Detroit, would be willing to assist them."—H. A. T.

SOUTHERN STATES.

THE DELKER PHAETON CO., of Henderson, Ky., report their home trade better than usual, but the demand in the Southern States not so good, owing to bad crops last season.

MURKIN, INGALLS & HUNT, of Nashville, Tenn., make the following trade report: "We have had a good trade up to this time, with fine prospects for abundant crops and a good summer and fall trade."

PERSONAL.—We were pleased to receive a call on July 12th, from Mr. Peter Ainslie, of Messrs. Geo. A. Ainslie & Sons, Richmond, Va. His response to our inquiry "How's trade?" forms the substance of a subsequent item.

GEO. A. AINSLIE & SONS, of Richmond, Va., report the first quarter's business of the present year as very good, and the second quarter quiet. On April 1st the showing was better than last year, the latter having been an exceptionally good year, but the spring trade was not what it should have been, and the total for the first half year was about the same as last. Crops in that section promise well, and this firm confidently expect an improvement in trade this fall.

CALIFORNIA.

D. W. C. PUTNAM & Co., of Petaluma, Cal., report business fair, and prospects good for the year. They run 2 fires and work 6 men, while their painting and trimming is done by contract. They build carriages, wagons, and road-carts.

O'BRIEN & SONS, of San Francisco, Cal., in a trade report dated June 19th, intended for our last number, but not received until the 26th, give the following particulars: "We usually work between 25 and 35 men, divided on repairs and new work, the latter consisting of 3 or 4 heavy carriages, and 40 to 60 business and road buggies, phaetons and delivery wagons, all to order. Trade has been fair this year."

W. T. ADEL, of San José, Cal., one of our far-away correspondents who got left last month, writes thus cheerfully under date of June 21st (received by us on the 27th): "Dear Hubbie: You ask *How's Trade?* Well, it's fair to middling. Cheap John work is going out. There is at present a fair demand for good home-made work, with quite a boom in Adel's patent spring-shaft Driving Carts. Your enterprise is commendable."

"DULLEST SPRING KNOWN."—One of our San Francisco friends, who desires us to withhold his name in order that he may speak with perfect frankness, makes the following trade report under date of June 24th (received by us on the 30th). He says: "In reply to your query, *How's Trade?* I will say briefly: 'Bad!' I employ 30 men and run 4 forges, and make vehicles of every description, according to demand, from express work to the finest carriage work. It's the dullest spring I have known for many years."

HATMAN & NORMANDIN, of San José, Cal., make the following trade report: "Our business has been very good. We do not manufacture all the goods that we sell, but handle quite a good-sized stock of Eastern manufacture, and we have made the latter our main business this year. Our two repositories, 90 x 30 ft. each, are constantly filled with Eastern carriages and those of our own make, and so far this year we have doubled our sales of last year for the same period. We run only two fires, on exclusively first-class light work, and employ from 14 to 18 men according to the season."

CANADA.

FIRE.—The carriage factory of Lawson & Wallace, at Amherst, Nova Scotia, was burned on May 17th. Their "fire circular" seems to show that they are by no means discouraged. It is headed by an illustrated picture of a pair-horse buggy proceeding at a 2.40 gait, or less, followed by the announcement "Fire! Burned out, but not gone out! New Shop to be built opposite our Old Stand immediately!" etc. We wish them luck.

FOREIGN.

COACH DIRECTORY.—*The Stable*, London, Eng., publishes monthly a "Four-in-hand Directory and Time-table." The issue dated July 1st enumerates seven coaches.

"TO HER MAJESTY."—To American eyes, the prominent advertisement, occupying the entire back cover of *The Stable*, London, Eng., by "John Harrison, Jr., Horse Slaughterer to Her Majesty!" looks a trifle odd.

PERSONAL.—Mr. Lawson Valentine and family are still in England. On July 12th they were at Shanklin, Isle of Wight, which they reached by "leaving London at 11 A. M., on top of one of the fine four-in-hand coaches; to Guildford, 30 miles, in three hours (exactly), horses changed four times; then by rail to Portsmouth, by boat to Ryde, and again by rail to Shanklin."

CARRIAGE PAINTERS WHO READ FRENCH will find in *Le Peintre en Voitures*, published by Hadwin Houghton, at No. 91 Champs-Élysées, Paris, France, an interesting and instructive review of their trade viewed from the French standpoint. The July number contains special attractions, including colored lithographs of a Mail Coach and Ladies' Phaeton (Petit-Duc), together with fifteen monograms, specially adapted for carriage work, executed in silver, by Callot. Painters who do not read French will appreciate the illustrations equally. The subscription price is \$3.00.

PRIZES OF THE LONDON COACH-MAKERS' COMPANY.—The award of the judges nominated to adjudicate the prizes offered by the Worshipful Company of Coach-Makers of London, has now been published. Mr. William Philipson, the junior member of Messrs. Atkinson and Philipson, Newcastle-on-Tyne, England, has gained the company's chief prize for a treatise on carriage draught. In the official award, Mr. Philipson is highly complimented for his ability as a mathematician, and on the success with which he has brought his knowledge of science to bear upon a very difficult subject. Mr. John Philipson, Jr., brother of Mr. Wm. Philipson, secures the Worshipful Company's bronze medal and a money prize for drawings of foliage and ornamental objects. The judges were Messrs. Thrupp, Woodall, Rogers, Alford, Hooper and Chancellor.

ELECTRIC LIGHT APPLIED TO CARRIAGES.—Mr. Joseph Offord, of No. 67 George-st., Portman Square, London, Eng., has been showing at the International Health Exhibition two very interesting broughams. In workmanship and taste of design they fully maintain the high reputation of his old established house, and the novelties introduced make them worthy of special notice. The first is a double-suspension brougham, in which an improvement in the front spring has been introduced. The perch is bent upward into almost a semi-circular form, which allows the front wheels to be turned almost completely around, one of them passing entirely beneath the bend of the perch. The carriage can be turned around in its own length with ease and rapidity. The vehicle itself is a model of fine workmanship and tasteful finish; it is lined with velvet plush of a dark olive color, and the body is painted a shade darker. The second brougham has a battery placed in the boot, of sufficient power to give light to an incandescent lamp, suspended from the roof of the carriage, which can be readily removed and fixed anywhere else. The battery is powerful enough to give a continuous current for thirty or forty hours, while its weight does not add greatly to the draught of the carriage. For doctors and others having to read while traveling, this arrangement will prove extremely useful. The method by which electricity is applied in this way appears to us a very practical one, and Mr. Offord must be congratulated on the success with which he has carried it out. We are not surprised to learn that he has been awarded the first-class certificate and medal at Calcutta. Among others of his exhibits were Offord's patent india-rubber brake skids, horseshoe-roughs, rubber-covered steps, etc. The last-named is a noticeable improvement, and has many advantages.

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INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Conrad B. Day & Co., Philadelphia, Pa... 362
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct.....
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York.
Kemper Bros., Cincinnati, O..... 362
Ten Eick & Kent, 1553 Broadway, New-York 362
S. D. Kimbark, Chicago..... 359

AXLES.

- R. Cook & Sons, Winsted, Ct..... 367
Carriage and Wagon Axles.
Dalzell & Co..... 355
Improved Collinga Axle.
Goodyear & Ives, New-Haven, Ct..... 362
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O..... 352
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 361
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilmington, Del..... 381
The Quaker Axle.
Wood, Smith & Co., Fort Plain, N. Y..... 363
Fort Plain Spring and Axle Works.

BODIES.

- F. T. Clymer, Wilmington, Del..... 378
Carriage Bodies and Carriage Parts.
Jas. Driscoll & Sons Co., Springfield, O.... 369
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 352
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago..... 359
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O..... 355
Bodies.

BOLTS.

- Norwich Bolt Works, Norwich, Conn..... 367
Genuine Norwry Iron Bolts.

CARRIAGES FOR THE TRADE.

- D. A. Altick & Sons, Lancaster, Pa..... 363
Anderson, Harris & Co., Cincinnati, O.... 377
Carriages, Buggies and Phaetons.
D. Argerbright, Troy, O..... 366
Road Cart.
F. A. Babcock & Co., Amesbury, Mass.... 364
The Clarkson Road Cart.
S. R. Bailey, Amesbury, Mass.... 3d cover page
Sleighs in the Wood and Iron.
Forder & Co., Limited, London, Eng..... 383
The Royal Hansom.
Northwestern Sleigh Co..... 369
Carts.
Renick, Curtis & Co., Greencastle, Ind.... 358
The Renick & Curtis Patent Road Cart.
Youngstown Carriage and Wagon Co., Youngstown, O..... 354
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 362
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa. 357
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 370
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O..... 357
Cincinnati Screw and Tap Co., Cincinnati, O. 359
Drills, Screws, Taps, etc.

- The E. D. Clapp Mfg. Co., Auburn, N. Y.. 358
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.

- C. B. Clarke, St. Louis, Mo..... 368
Silvester Patent Tire.

- C. Cowles & Co., New-Haven, Ct.....
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)

- Cortland Box Loop Co., Cortland, N. Y... 367
Cortland Buckle Loop.

- Crandall Stone & Co., Binghamton, N. Y. 379
Carriage Hardware.

- Dayton Malleable Iron Co., Dayton, O.... 374
Carriage Hardware.

- Eberhard Mfg. Co., Cleveland, O..... 354
Carriage, Wagon and Saddlery Hardware.

- W. M. Farr, Dowagiac, Mich.....
Common Sense Sand and Mud Band.

- M. T. Gleeson, Columbus, O..... 371
Fine Carriage Mountings.

- Guthrie & Clifton, Buffalo, N. Y..... 383
Forged Iron and Steel Axle Boxes.

- Herbrand Co., Fremont, O..... 371
Herbrand Gear Irons.

- Kerr & Reid, Bridgeport, Ct..... 371
Cart Irons.

- S. D. Kimbark, Chicago..... 359
Carriage and Wagon Hardware.

- Kopscay & Polya, New-York City..... 383
Carriage Door Lock.

- Geo. G. Larkin..... 356
Carriage Top Stays.

- Metal Stamping Co., New-York..... 377
Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)

- Queen City Forging Co., Cincinnati, O.... 382
Carriage Hardware.

- H. B. Pitner & Co. Plymouth, Ind..... 367
Whip and Line Holders.

- Rubber Step Mfg. Co., Boston, Mass..... 374
The Rubber Covered Carriage Step.

- H. D. Smith & Co., Plantsville, Ct.....
.....4th cover page
The "Encircled S" brand of Fine Carriage Forgings.

- H. M. Strieby & Co., Newark, N. J..... 363
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.

- Topliff & Ely, Elyria, Ohio..... 364
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.

- Trenton Iron Co..... 365
Wire for Ties and Can Opners.

- Vehicle Shaft Supporter Mfg. Co., Cincinnati, O..... 379
Iron Shifting Rails.

- White Mfg. Co., New-Haven, Ct..... 367
Pole Crabs.

IRON AND STEEL.

- S. D. Kimbark, Chicago..... 359
American and Norway Iron, Steel Tire, etc.

- Wm. & Harvey Rowland, Frankford, Philadelphia 372
Iron and Steel. (See also Springs.)

LAMPS.

- C. Cowles & Co., New-Haven, Ct.....
(See also Hardware and Mountings.)

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 356
A Substitute for Leather.

- T. P. Howell & Co., Newark, N. J..... 381
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich..... 370
Little Giant Hub-Borer.

- W. F. & John Barnes, Rockford, Ill..... 375
Foot and Steam Power Machinery.

- Bentel, Margedant & Co..... 367
Woodworking Machinery.

- Capital City Mach. Works, Columbus, O... 379
Standish Imp. Foot Power Hammer or Oliver.

- The Egan Co., Cincinnati, O..... 374
Carriage Wood-working Machinery.

- Defiance Machine Works, Defiance, O.... 354
Hub, Spoke, Wheel and Bending Machinery.

- J. A. Fay & Co., Cincinnati, O 358
Woodworking Machinery.

- Heald & Morris, Baldwinsville, N. Y..... 358
Engines.

- George W. Heartley, Toledo, O..... 382
Little Giant Axle Box Press.

- Mason Wheel Co., Crown Point, N. Y..... 356
Wheel Tenoning Machine.

- H. A. Moyer, Syracuse, N. Y..... 378
Hub Boring and Boxing Machine.

- C. F. Pettingell & Co., Amesbury, Mass... 370
Full line of Patented Carriage and Wheel Machinery.

- Uhler & Benton, New-York..... 381
The Lewis Axle Machine.

- Wiley & Russell Mfg. Co., Greenfield, Mass.
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 363

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O..... 354
Coach and Car Colors and Varnishes.

- Carey, Ogden & Parker, Chicago, Ill.....
.....3d cover page
Coach and Car Colors.

- F. W. Devoe & Co., New-York... 3d cover page
Carriage, Coach and Car Colors.

- Felton, Rau & Sibley, Philadelphia, Pa.... 381
Ivory Drop Black.

- Miles Bros. & Co., New-York.....
Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.

- Chas. Moser & Co., Cincinnati, O..... 367

- Palm & Fechteler, New-York..... 353
Transfer Ornaments.

- Reno Bros., Pulaski, Pa..... 363
French Umber Filler.

- Chas. D. Thum, Philadelphia, Pa..... 382
Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.

- Jno. L. Whiting & Son, Boston, Mass.....
Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.

PUBLISHERS.

- "The Hub," New-York City.....

-354, 356, 357, 358, 359, 360, 380

- E. Taylor & Co., London, Eng..... 378
"The Stahlc."

- Wm. M. Bradley & Bro., Philadelphia, Pa. 381
Mitchell's Atlas.

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind.... 377
Gears.

- Bridgeport Spring Co., Bridgeport, Ct.... 364
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.

- Canton Spring Co., Canton, O..... 379
Carriage, Wagon and Seat Springs.

- Cleveland Carriage Bow Co..... 358
Sell's Platform Gears.

- Dexter Spring Co., Hulton, Pa..... 372
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.

- Henry Spring Co., Winsted, Conn.....
The Henry Single-leaf Rib Spring.

- Johnson & Rose, Detroit, Mich..... 359
Springs and Gears.

- Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa..... 361
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)

- Longstreth & Ayer Mfg. Co., Columbus, O. 366
The L. & A. Adjustable Side-spring.

- Magner & Thomas Spring Co., Wellsville, N. Y. 371
Improved Thomas Spring.
- Mulholland Spring Co., Dunkirk, N. Y. 365
The Mulholland Spring.
- T. D. Olin & Co., Cincinnati, O. 353
The Olin Springs.
- Rice Spring & Carriage Co., Pittston, Pa. 376
Rice Carriage Springs.
- C. W. Saladee, Torrington, Conn. 356, 368
"Duplex Springs."
- Wm. & Harvey Rowland, Frankford, Philadelphia, Pa. 372
Fine Springs from Swedish Stock. Also Iron and Steel.
The Shuler Springs and Gears.
- D. W. Shuler, Amsterdam, N. Y. 361
- The Edward Storm Spring Co., Poughkeepsie, N. Y. 361
Storm Side-bar Springs.
- Geo. F. Thompson, Oshkosh, Wis. 363
Thompson's Improved Climax Gear.
- Henry Timken, St. Louis, Mo. 373, 378
The Timken Cross-Spring.
- Tomlinson Spring Co., Newark, N. J. 362
Fine Springs and Axles.
- R. Tomlinson Spring and Axle Works, Bridgeport, Ct. 382
Springs: Specialty, The Hamlin.
- Tuthill Spring Co., Chicago, Ill. 367
Fine Springs, including Timken, Penroyer, Stickle, Groot, Brewster, and other patent Springs.
- C. R. & J. C. Wilson, Detroit, Mich. 372
The Wilson Side-bar Cross-spring.
- Wood, Smith & Co., Fort Plain, N. Y. 363
The American Standard Springs and Axles.

TOOLS.

- Chambers, Bros. & Co., Philadelphia, Pa. 382
Bolt and Rivet Clippers.
- Cincinnati Screw and Tap Co., Cincinnati, O. 359
- S. D. Kimbark, Chicago. 359
All latest improvements in Tools and Machines.
- J. W. Manneer, Rochester, N. Y. 367
Manneer's Bench Drill.
- Porter & Wooster, Boston, Mass. 374
"Easy" Bolt Clipper.

TRIMMERS' MATERIALS.

- Active Manufacturing Co., Cincinnati, O. 357
Carriage Dashes. (See also Hardware.)
- American Tack Co., Fairhaven, Mass. 353
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)
- Ashtabula Carriage Bow Co., Ashtabula, O. 366
Leather Covered Bow.
- Bridgeport Coach-Lace Co., Bridgeport, Conn. 362
Coach Laces and Trimmings.
- Cleveland Dash Co., Cleveland, O. 376
Carriage Dashes and Fenders.
- Cleveland Carriage Bow Co., Cleveland, O. 358
Leather-covered Carriage Bows.
- Cortland Box Loop Co. 367
(See Hardware).
- Crandal, Stone & Co., Binghamton, N. Y. 379
Carriage Trimmings.
- Durham & Wooster, New-Haven, Conn. 351
English Canopies
- Excelsior Top Co., Cortland, N. Y. 365
Carriage Tops.
- English & Mersick, New-Haven, Conn.
Carriage Broadcloths, Canopies and Canopy Top Fringes.
- Hardt, Von Bernuth & Co., New-York City, 379
Carriage Cloths, etc.
- Harris Button-Hole Co., Lim., New-York. 366
Pat. Crimped Leather Knob Eyelets.
- Japanese Hair Mfg. Co., Jersey City, N. J. 370
Japanese Hair and Japanese Moss.
- S. D. Kimbark, Chicago. 359
Cloths, Leather, etc., etc.
- Chas. P. Ketterer, New-York. 365
Wagon Curtain Fastener.
- C. Z. Kroh & Bro., Toledo, O. 375
Tops, Cushions, Backs, Falls, etc.
- Longstreth & Ayer Mfg. Co., Columbus, O. 366
Dashes, etc.
- Metal Stamping Co., 64 Reade-st., New-York, 377
- Parker Carriage Goods Co., Cincinnati, O. 353
Carriage Trimmings in great variety.
- F. J. Schmid, New-York. 370
Hand-made Coach Laces, and all kinds of Trimming Materials.
- Ten Eick & Kent, New-York City. 362
Carriage and Siegh Materials of every description.
- Topliff & Ely. 364
See Hardware.

VARNISHES, JAPANS, ETC.

- Moses Bigelow & Co., Newark, N. J. 376
Established 1845. Fine Coach and Car Varnish Manufacturers.
- Berry Bros., Detroit, Mich. 352
Coach and Railroad Varnishes.

- John Babcock & Co., Boston, Mass.
.....2d cover page
- Billings, Taylor & Co., Cleveland, O. 354
Coach and Car Colors and Varnishes.
- F. W. Devoe & Co., New-York. 3d cover page.
Carriage, Coach and Car Colors.
- DeGolyer & Bro., Chicago, Ill. 384
Wearing Body Varnish.
- Felton, Rau & Sibley, Philadelphia, Pa. 381
- Wm. Harland & Son, Merton, Surrey, England. 2d cover page
On sale in America by first-class dealers in principal cities.
- Hildreth, Templeton & Co., New-York.
.....2d cover page.
Superfine Coach and Car Varnishes.
- King Varnish Co., Akron, O. 351
Fine Coach Varnishes.
- Moller & Schumann, Brooklyn, N. Y.
.....2d cover page
- O'Brien Varnish Works, South Bend, Ind. 382
- Parrott Varnish Co., Bridgeport, Ct.
.....2d cover page
- C. C. Reed & Co., New-York City. 375
- Stimson & Co., Boston, Mass. 383
Fine Coach and Car Varnishes.
- Valentine & Company, New-York. 349
- L. M. West, Rockford, Ill. 370
Carriage-top Dressing.

WHEELS AND WHEEL STOCK.

- Bollenbacher & Sons, Bloomington, Ind. 381
Spokes.
- S. N. Brown & Co., Dayton, O. 383
Superior Wheels, Hubs, Spokes, etc.
- Crane & McMahon, 38 Park Place, N. Y. 362
(Salesroom, New-York.) Spokes, Rims, etc., and Hickory, Oak and Ash Plank.
- Howard M. DuBois, Philadelphia, Pa. 365
Wheels, Hubs, Spokes, etc.
- Hagerstown Spoke Works, Hagerstown, Md. 358
- Hoopes, Bro. & Darlington, Limited, West Chester, Pa. 379
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.
- Phineas Jones & Co., Newark, N. J. 374
Patent and Plain Wheels, Spokes, Hubs, etc.
- Lambertville Spoke Mfg. Co., Lambertville, N. J. 362
Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.
- Longstreth & Ayer Mfg. Co. 366
See Springs and Gears.
- Philip Lebzelter, & Co., Lim., Lancaster, Pa. 362
Fine Wheels and Wheel Material.
- New-York Sarven Wheel Co., New-York. 375
Branch of Royer Wheel Co., Cincinnati, O., which see.
- Rochester Wheel Co., Rochester, N. Y. 368
Wheels, Hubs, Spokes, Rims.
- Royer Wheel Co., Cincinnati, O. 375
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.
- Springer, Morley & Gause Co., Wilmington, Del.
Wheels and Wheel Material.
- Winch & Sons, Bryant, Ind. 363
White Elm Hub Blocks.

WOODWORK AND MISCELLANEOUS.

- Wm. M. Bradley & Bro., Phila., Pa. 381
Mitchell's Atlas.
- Combination Seat Co., South B nd, Ind. 370
Perkins' Patent Veneer Seats.
- E. F. French, New-York.
Built-up-wood Roofs.
- Herring & Co., New-York City. 369
Herring's Champion Safes.
- S. D. Kimbark, Chicago. 359
Burr Patent Bodies. Carriage and Wagon Wood Material.
- John C. Konrad, New-York. 382
Carriage Drafting and Designing.
- Frank B. Miller, Enon, O. 377
The Reindeer Cutter.
- Oberly & Schlichter, Telford, Pa. 378
Receipt for Removing Paint.
- Swaine & Adeney, London, Eng. 368
Whip Manufacturers.
- Partner Wanted. 367
- John M. Tufts, Jr., 83 Nassau-st., N. Y. 355
Office Desks.

Labor Bureau.

SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," free of charge to all carriage mechanics seeking employment, and also to all em-

ployers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

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—WANTED.—A situation to take charge of a paint-shop; first-class finisher and striper; can give best of reference; New-York City preferred. Address B. D., care of *The Hub*, 323 Pearl-st. P. O. Box 3039.

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IMPORTERS OF THE CELEBRATED

**ENGLISH CANOPIES.**

Sole Agents for the United States.



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Points of Excellence.

1. Can be oiled without taking off wheel.
2. Can oil without unhitching.
3. Oil reservoir holds enough oil to run 2,000 to 3,000 miles.
4. Is perfectly sand-proof.
5. The box is as easily set as an ordinary box.
6. All washers run in clean oil, and hence will not wear.
7. Oil cannot escape at either end of hub, hence will not collect dirt.
8. The oil tube prevents box from turning in hub.
9. The oil-cup on end of box prevents it slipping back.
10. Will not rattle.
11. Will wear twice as long as the half-patent axle which is in general use.
12. Will not lock.
13. Does not require a larger hub than for the wrought-iron box.

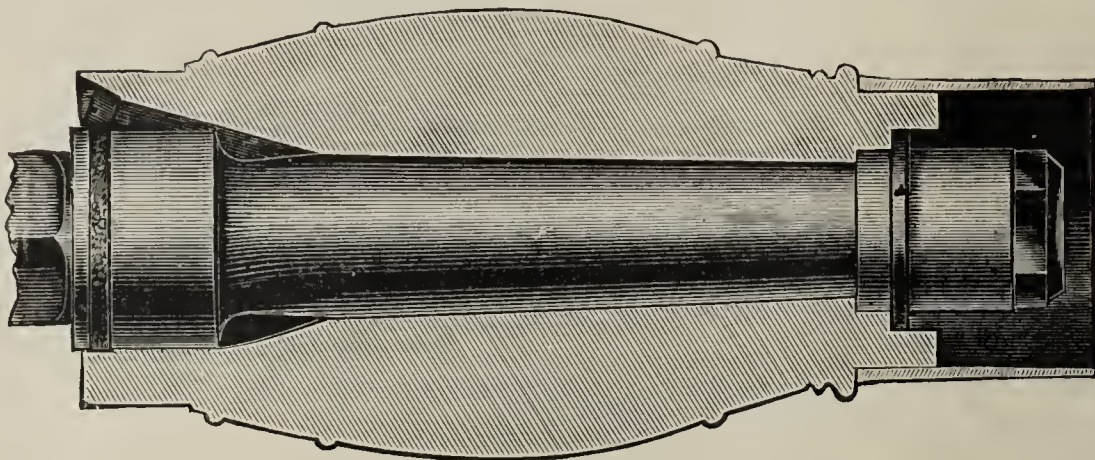
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Self-Lubricator and Sand-Proof.

MANUFACTURED BY

A. D. Howe & Co., Coshocton, O.

The Simplest, Cheapest and Best Self-Lubricator made.



Will Furnish, Cash with Order, a Trial Set

$\frac{7}{8}$ Fantail, Fine Steel Axles, for	\$4.50
Inch " Refined Iron "	3.50

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Houston Hay, Coshocton, O., licensed to manufacture for and sell to the trade.

No handling dirty wheels.
No soiling of hands or clothing; a lady can oil if necessary.

No dust or grit falling on the spindle, or washers dropping into the dirt.

When necessary to oil, that being about every two or three months, requires less than one-fourth the time it does to oil the ordinary axle.

The prevalent idea that the spindle and box of an axle should be cleaned at every oiling is correct concerning the ordinary axle, but does not apply to this axle because all foreign substances, such as dirt, grit, etc., are excluded.

When a journal or spindle is kept thoroughly oiled, the wear is almost imperceptible. Hence it follows that as there is nothing on spindle or in the box but oil, it is not necessary to clean them before oiling. Clean castor oil will not gum.

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MANUFACTURERS OF

CARRIAGE BODIES

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Titus's Pat. Bent Sill Phaeton Body.

Acknowledged to be the best Phaeton Body ever put on the market.

Send for Descriptive Circular and Price-list.

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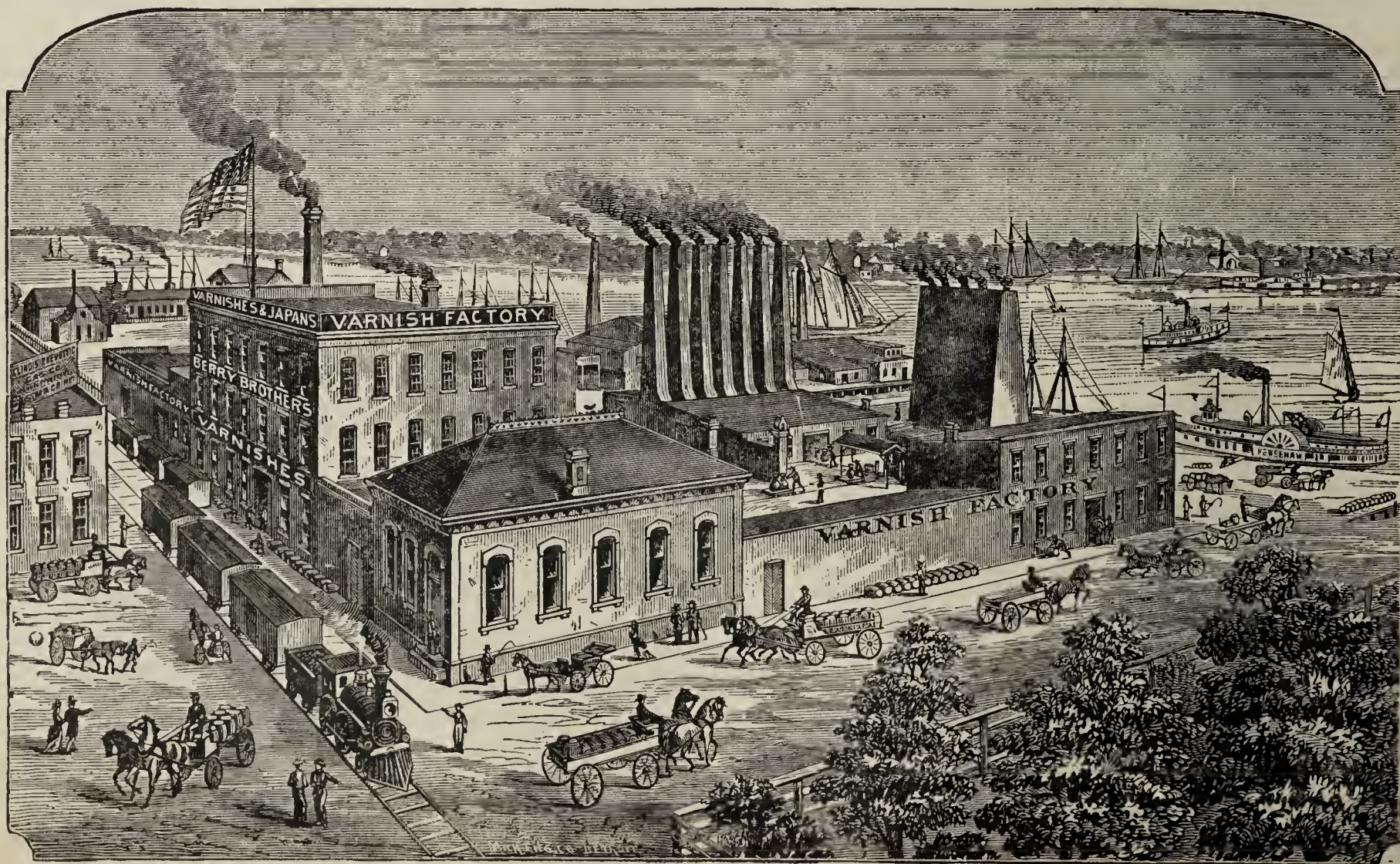
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ESTABLISHED 1858.

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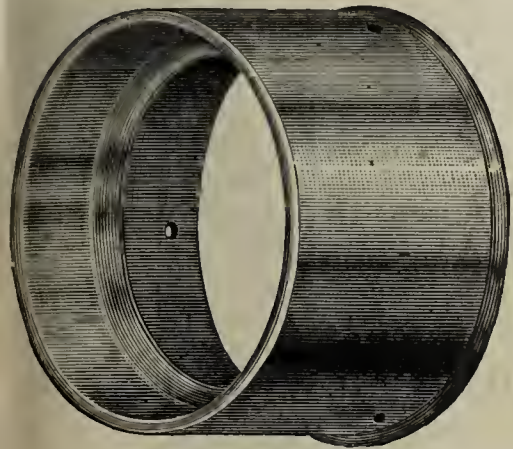
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Buckle Loops.
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Knob Patch and Fastener.
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THE LARGEST AND MOST COMPLETE ASSORTMENT
OF VERY SUPERIOR DESIGNS AND QUALITY.
PRICE-LIST AND SAMPLE BOOK MAILED UPON APPLICATION.
WE HAVE NO BRANCH HOUSE IN CINCINNATI.

The Strongest and Easiest-riding Spring made.

The · OLIN · Spring.

Patented August 30, 1881.
Reissued Aug. 21, 1883.

an unskilled mechanic, to adjust them by simply changing the bolts in the crabs.

EVERY person, without exception, who has used these springs, pronounces them *head and shoulders* above all others now known to the carriage trade.

Here are a *few* points of advantage we claim:

First: They are adjustable, and can be fitted to all sizes of gearing or body, having a variation of four (4) inches (two inches increase or reduction in length from standard size, at which they are coupled at the factory).

Second: They carry the body in a better position, when unevenly loaded, than any flexible spring now before the public.

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Fourth: By the manner of attaching the crabs in the center, we avoid all forward motion of the body upon striking obstructions, which with other Side-bar Springs, sometimes causes a breakage of spring-bar.

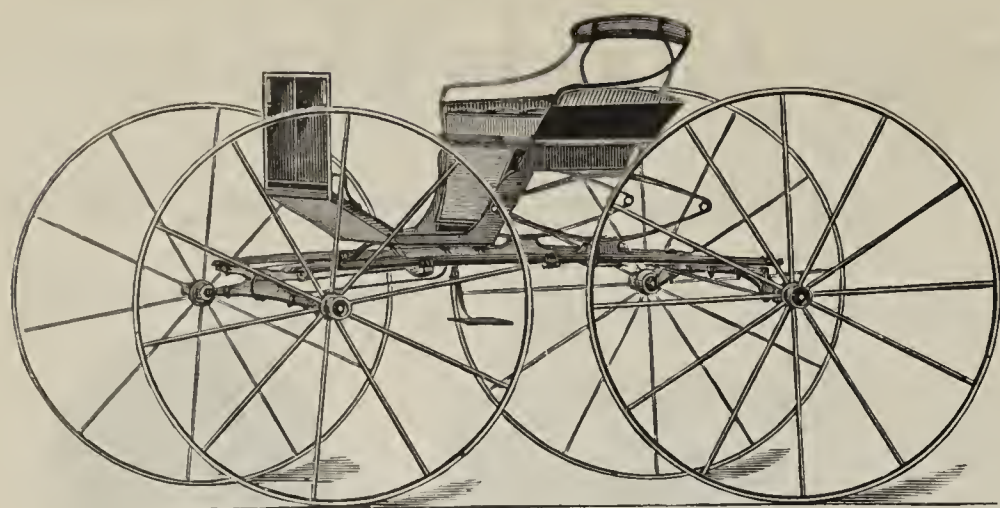
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Lining and Saddle Nails.
Upholsterers', Gimp, Lace, Trimmers', Carpet Tacks (Blued, Tinned and Coppered.)
Silvered, Japanned and Colored Lining and Saddle Nails.
ALSO,
Tufting Buttons, with every eye soldered to its back, which makes the strongest button in the market. (Patented June 28th, 1881.)
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WE ARE THE SOLE MANUFACTURERS OF

White's Pat. Phaeton Buckboard

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We also manufacture for the Trade,

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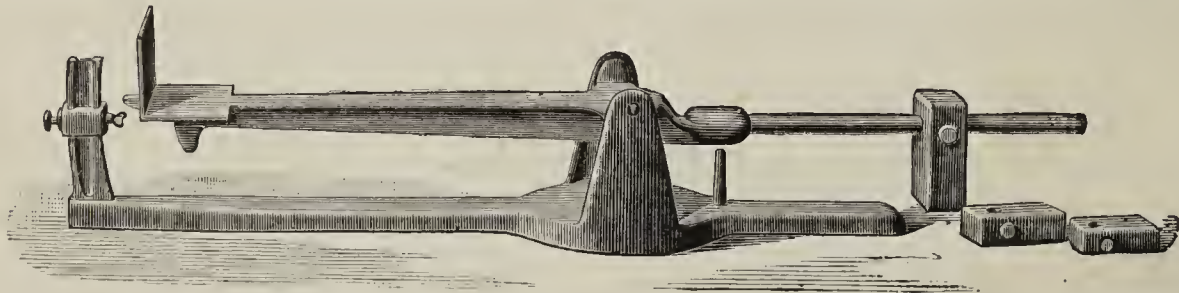
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DEFIANCE, OHIO,

MANUFACTURERS OF

Hub, Spoke, Wheel and Bending Machinery,

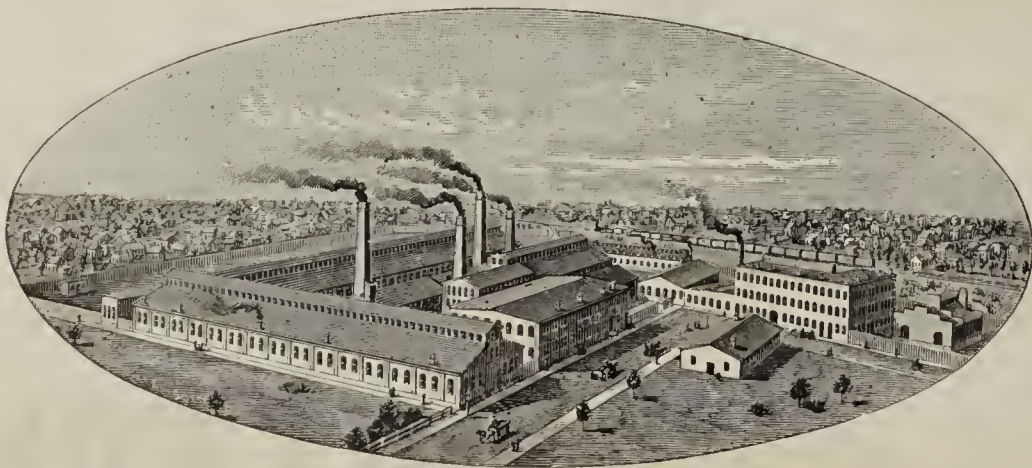
Moss Patent Drill Grinder, for Grinding Twist or Flat Drills, and

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SEYMOUR'S PATENT PROPORTIONAL SCALE.

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Although we have a large and in-
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do we intend to give up our Wood
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Our business in that branch is con-
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Plates which we present this month
show that QUALITY is still our
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If you want anything in this line
send for estimate to

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Figures Can't Lie!

James Scully, being duly sworn, deposes and says: I am employed as foreman of the Franklin Press Rooms, and have been doing the presswork for *The Hub*, and at no time since being so employed have I printed less than six thousand (6,000) copies per month; and further, I printed over seven thousand (7,000) copies each of the January, February, March, April and May issues of *The Hub*, of this year; and am now printing over seven thousand (7,000) copies of the June issue, 1884.

Subscribed and sworn to before me, }
this 21st day of May, 1884. }

W. R. Lewis

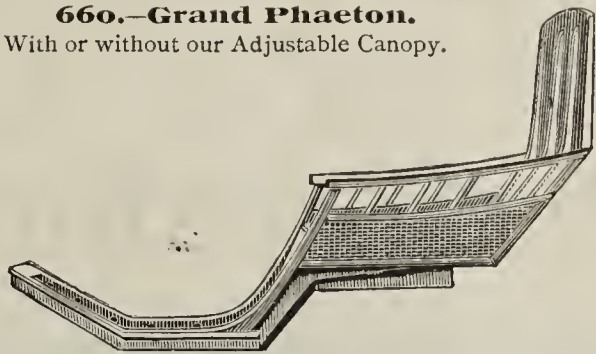
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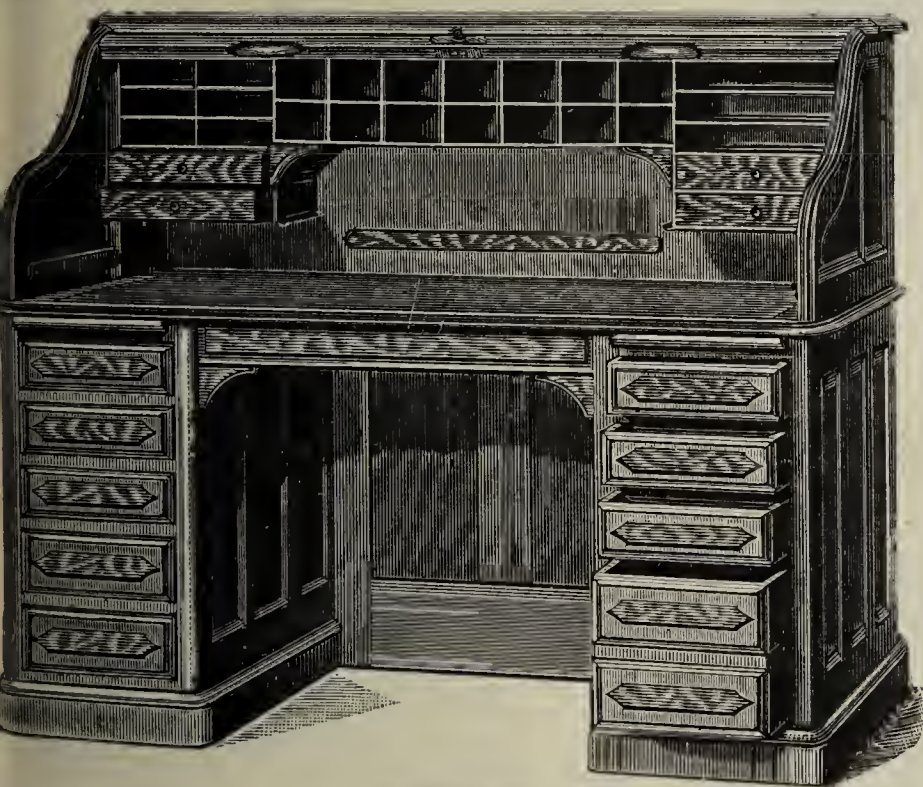
660.—Grand Phaeton.
With or without our Adjustable Canopy.



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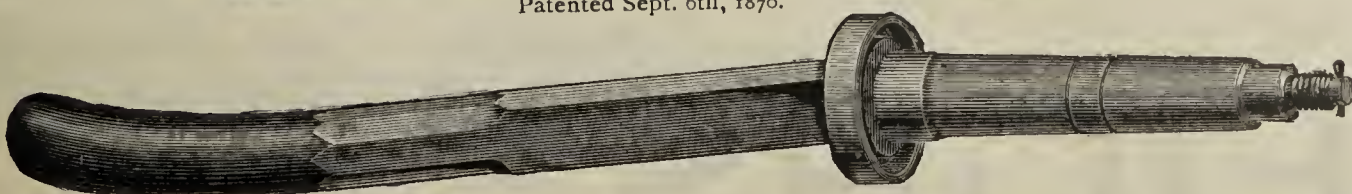
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Dalzell's Improved Collinge Axle.

Greatly superior in
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to all other so-called
Half Collinge
and
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Half-Patent and other styles of Axles, of Best Material and Workmanship.



Our Four Seat, "DUPLEX," No. 6.

Following are the detached parts as we furnish same for the "Duplex" Gear.



Rear and Front Perch Couplings.

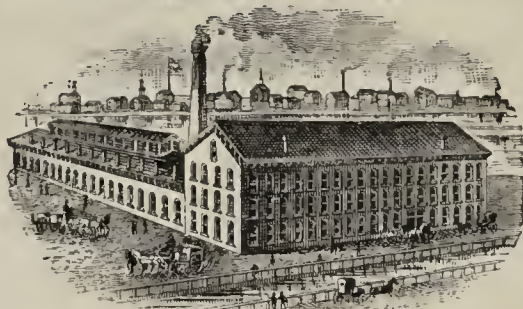
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In Carriage Building.

THE "DUPLEX"

For all classes of business and pleasure vehicles.

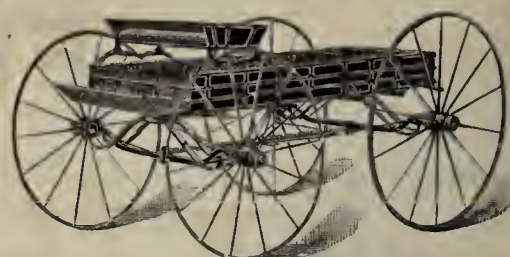


Factory at Birmingham, Conn.

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Patentee and Sole Manufacturer for the U. S.



Light Delivery Express, No. 8.



The "Duplex" Gear, complete.

The weight imposed is carried next the Hub, hence,
No "Springing" of the Axle.
The Springs are "Self-compensating," hence,
No Links to become loose and "Shaky."
The length of Springs secures requisite motion.
Carries the body as low as a Side-bar.
Attractive in style, and is,
Unsurpassed for its simplicity of construction.

We call the special attention of the Carriage Trade to our IMPROVED Substitute for Leather.



Silver Medals for Best Substitute for Leather awarded at Cincinnati and Louisville Expositions, 1883.

The goods cannot be distinguished from real leather, are impervious to water, not affected by heat or cold, and will not crack, rub or peel off.

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Since its introduction to the Carriage Trade, it has proved its durability by the test of actual and continued use on vehicles, and, as a consequence, the demand for it has been steadily increasing. It is now used and approved by the largest manufacturers.

It is Beautiful in Appearance, Durable, and Low in Price,
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Particular Attention is directed to our

New Curtain Stock,

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Send for samples of this New Material, and of our Substitute for Leather, to

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Yes?

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PRICE, 15 CENTS.

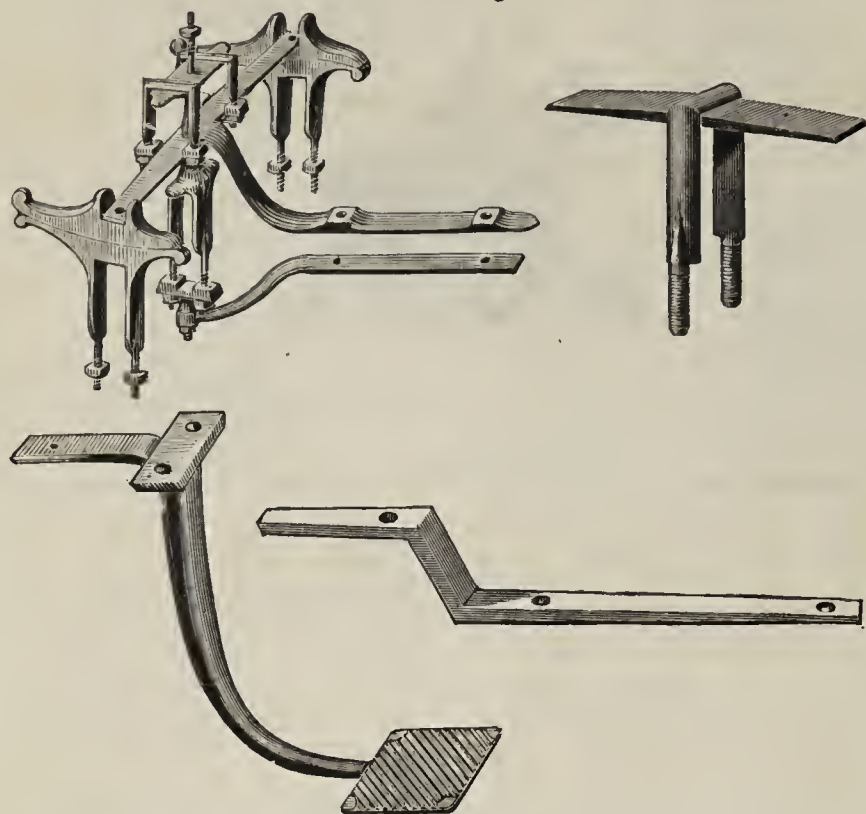
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AUBURN Single Drop-Perch Gear Irons

Set No. 3.

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We manufacture Every Description of Wrought Carriage Hardware.

No. 3 Set consists of the pieces shown in the above cuts, viz

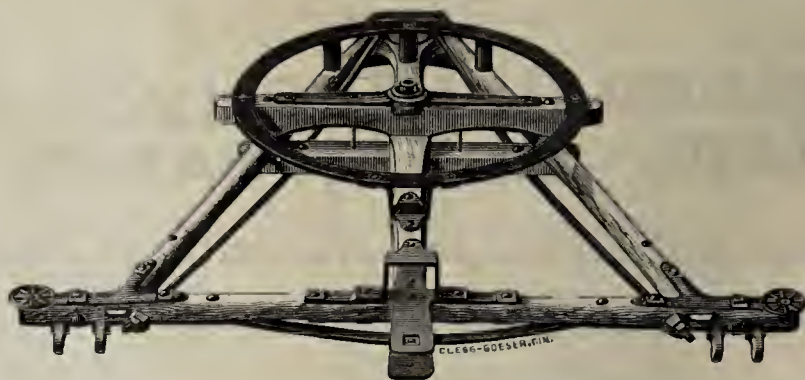
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|---------------------------------------|------------------------------------|
| 1 Set Fifth-wheel Heads, Scroll Ends, | 1 Back Drop-Perch End, |
| 1 Perch Plate, | 1 Pair Finished Steps, |
| 1 Finished Flange King-bolt, | 1 Set Front Saddle Clips, 3 piece, |
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N. B.—Where steps that clip to the bar are desired in place of those shown in the cut, we will furnish them at same price.

Send for circular of No. 1 and No. 2 sets Single Drop-Perch Gear Irons.

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SELLE'S Patent · Platform · Wagon · Gear.



Simple and Strong in Construction, and not liable to get out of order. The Cheapest Gear, with Real Merit, in the Market.

FOR SALE BY THE LEADING JOBBERS IN CARRIAGE AND WAGON MATERIALS.

In offering this Gear to the trade, the manufacturers are confident that it must very soon take a place among the best gears in use, and mechanics will undoubtedly see at once the superior advantage of the **Head-block and continuous Truss Rod**. It has been in use two years, and has in all cases given satisfaction.

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Also Manufacturers of Leather-Covered Carriage Bows.
Send for Price-lists and Discounts.

31 Designs for 15 cents,

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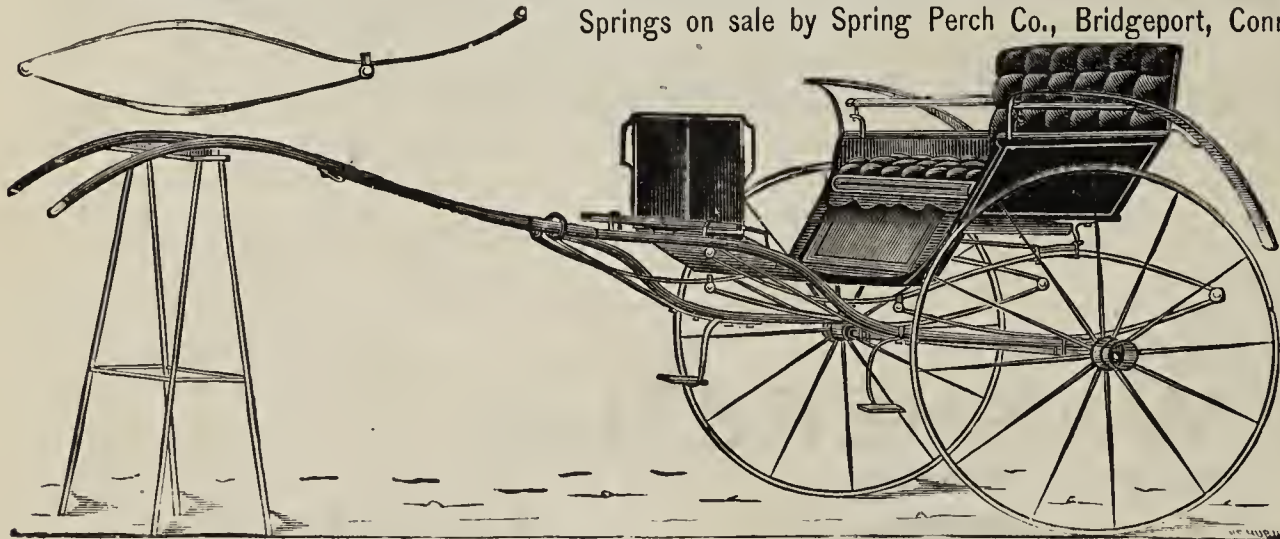
Produce Truck, Feed Truck, Light Ale Truck, Heavy Ale Truck, Light Business Truck, Mercantile Truck, Furniture Truck, Safe Truck, Three-spring Express Wagon, Builders' Wagon, Heavy Beer Wagon, Platform-gear Express Wagon, Farmers' Wagon, Medium Express Wagon, Light Beer Wagon, Heavy Grocers' Wagon, Light Grocery Wagon, Farmers' Wagon, Milk Wagon, Medium Grocery Wagon, Dry Goods Wagon, Dry Goods Wagon (second pattern), Weiss Beer Wagon, Heavy Express Wagon, Light Baggage Wagon, Dry Goods Wagon (third pattern), Heavy Grocery Wagon, Parcel Cart, Brick Wagon, Ice Wagon and Mineral Water Wagon.

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The Longest, the Strongest and Best Cart-Spring made. Rides equal to best buggy. No weight on horse's back. Nicely adjusted and perfectly balanced. THE KING OF ROAD CARTS!

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He's our Man.

"I don't care so very much for fashion plates of Victorias and Mail Coaches, but whenever you bring out a drawing of a Truck or Express Wagon, I'm your man!"

Yes, sir, you're the man for whom our Hub Almanac Quarterly for July, 1884, is specially intended. It contains 31 designs of Trucks, Farmers' Wagons, Express Wagons, Beer Wagons, Milk Wagons, Ice Wagons.

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Capacity, 1,500,000 per annum

Established 1870.

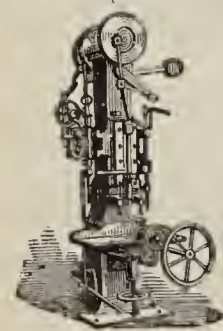
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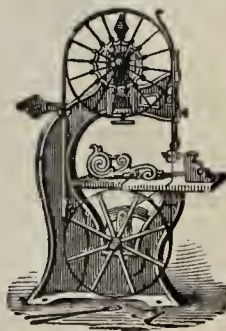
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Automatic Spoke Throating, Tenoning and Mitering, Hub Mortising and Boring Machines.

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IRON, STEEL, NAILS,
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SPECIALTIES:

Burr Patent Wagon Bodies. Finished Harrow Woods. Tops and Cushions.
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Sole Western Agent for Empire Cross-Spring Gears.

THE

Johnson Wagon Gear.



THIS Gear has proved its reliability and efficiency by extended use, and is, beyond question, the most complete and durable combination Gear in the market. The Draft is low, solid and direct from the axle. The Axles and Springs are of no peculiar shape whatever, and can be easily repaired in case of accident.

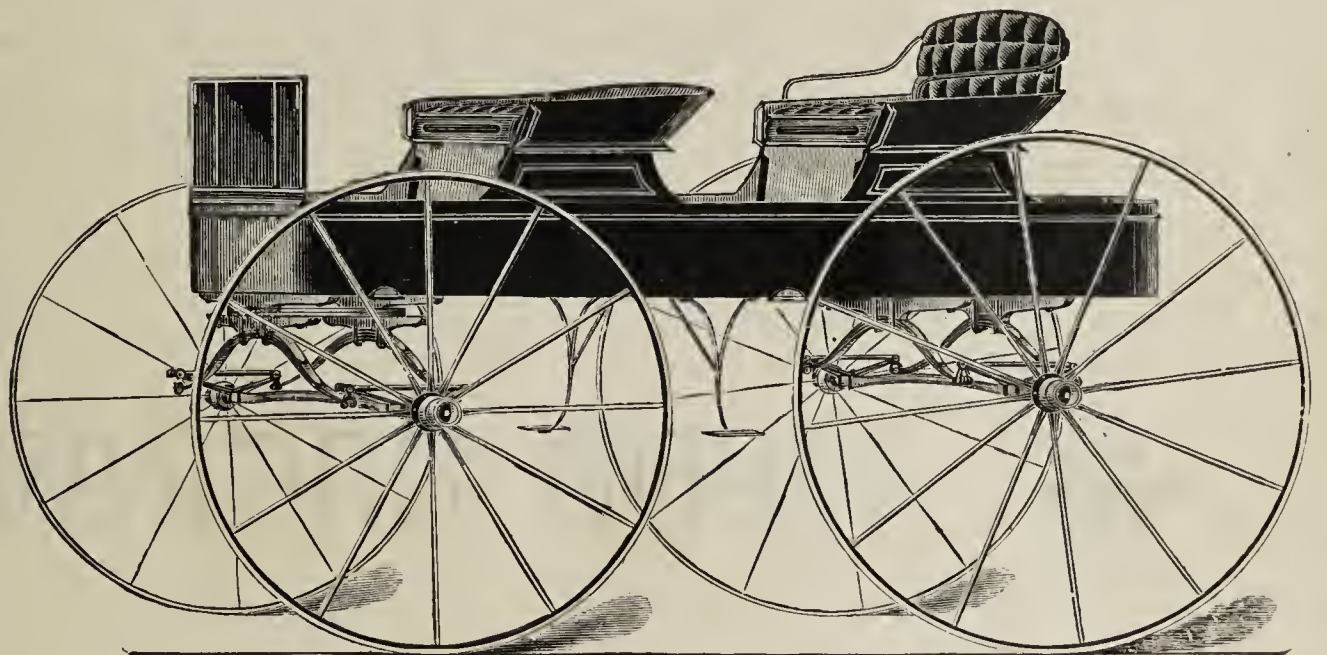
The Springs are of the Best Brands.

The Axles of the Best Refined Iron.

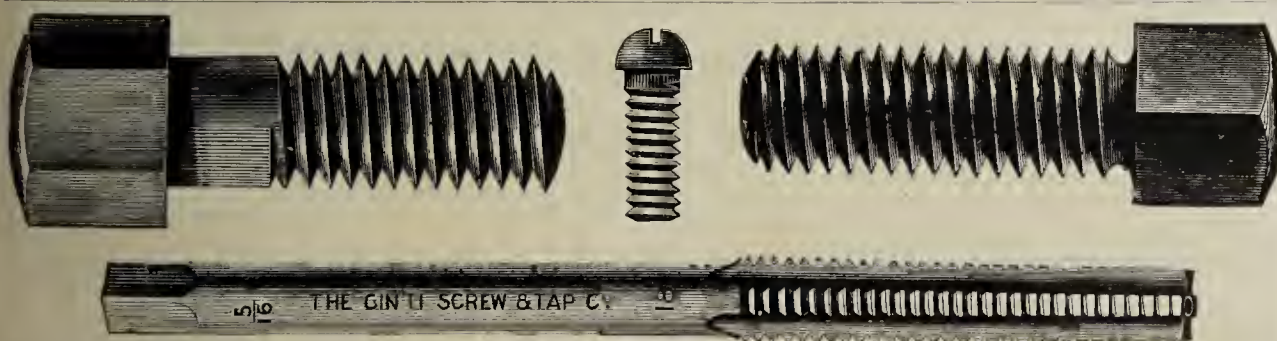
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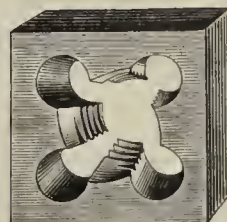
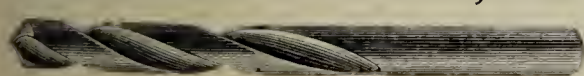


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will find it greatly to their advantage to bear in mind that this sort of advertising, to be effective, must be gotten up in an artistic and novel manner. The only objection that has heretofore been advanced against this class of work is the expense.

By making a specialty of carriage and wagon makers' printing, which we turn out in great quantities, we have been enabled to bring the cost within the reach of all.

Write us, stating exactly what you are in need of, and we will send you samples and prices, by return mail, free of charge.



WOOD ENGRAVING.



Possessing every facility for executing orders in the business of Wood Engraving, and employing none but the most experienced men in every department thereof, we confidently assure our patrons that they will find it to their advantage to favor us with all their work of this description.

A comparison of the Fashion Plates appearing in every number of *The Hub* with similar work in other publications, is sufficient to substantiate our claims of the superior excellence of our Wood-Engraving department.

While making a specialty of carriage work, we are prepared to execute Wood Engraving of every description in the most artistic and satisfactory manner.

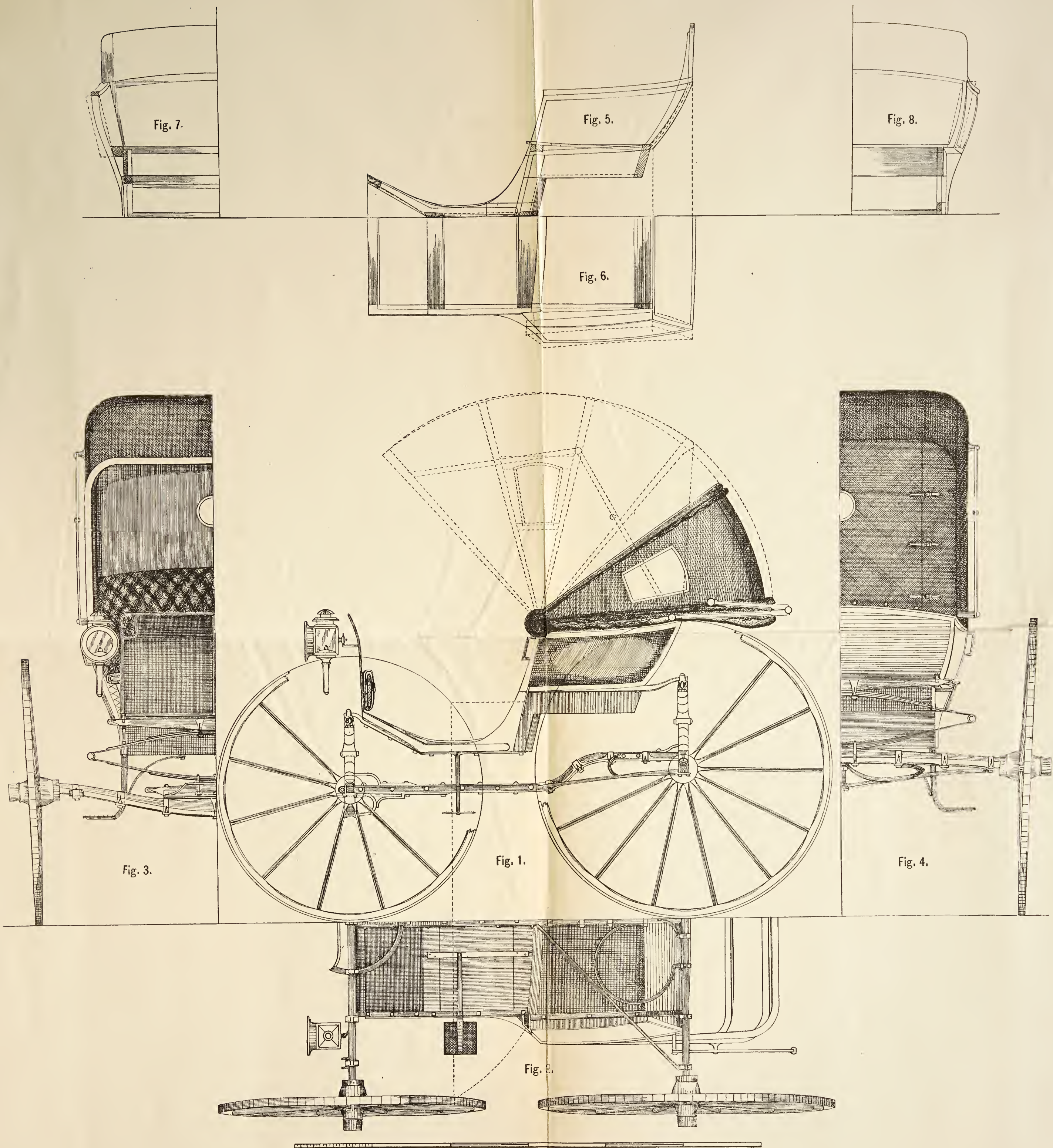
We can work from photographs, sketches (which should be accompanied by measurements, when possible), or direct from the object, if the latter be in the vicinity of New-York City.

Estimates cheerfully furnished upon application. Our prices will be found reasonable.

“The Hub,”

323 Pearl-st., NEW-YORK.

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FOURTH-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.—Scale, one inch to the foot.

By Mr. THOMAS FURMIDGE, of No. 13 Barton-st., E., Hamilton, Ontario.

Awarded the Fourth Prize (Special), in the Class of Working Drawings, consisting of \$15 in cash and \$3 *Hub* Subscription, by the Jury on Award of *Hub* Prizes, whose Report will be found in our June number, pages 173 and 174.

For mechanical description, see page 393 of this number.

THE HUB, September 1, 1884.

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THE HUB, N.Y.

COLOR PLATE NO. L. MEDIUM CABRIOLET. SCALE, THREE-QUARTER INCH

The Hub's

Fashion Plates: Autumn Season, 1884.

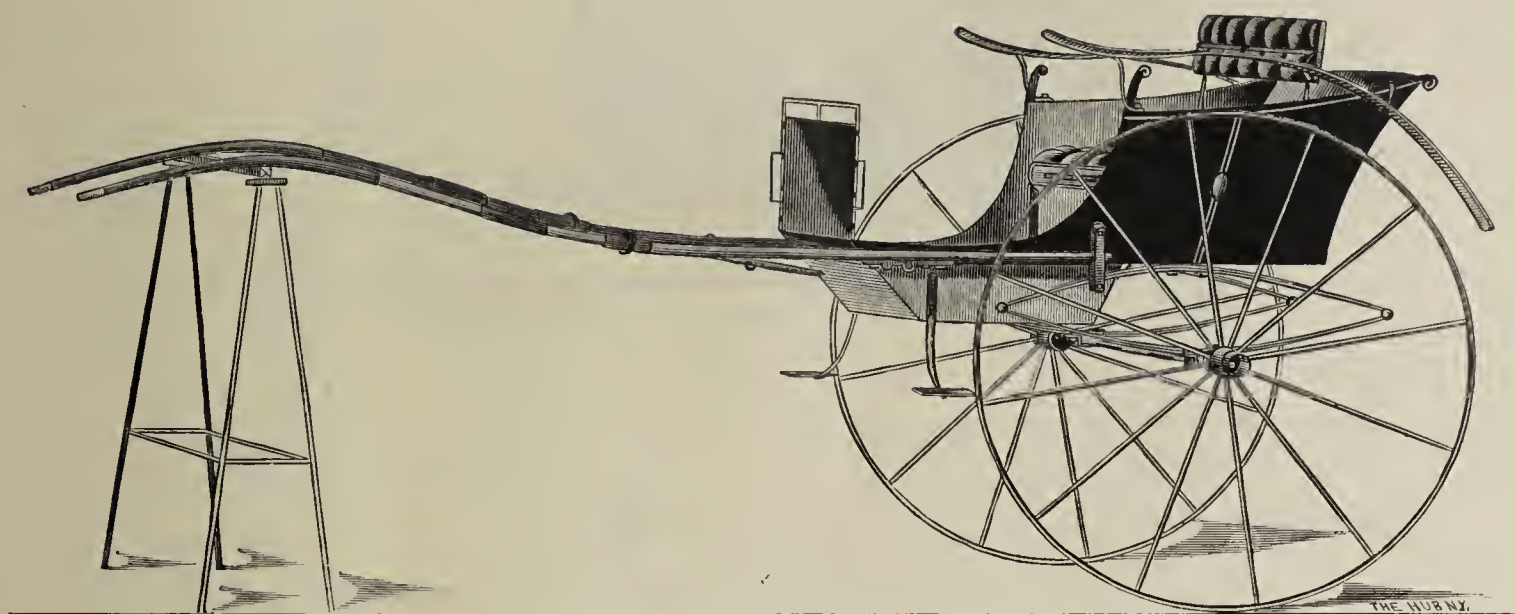


Plate No. 42. BRIDGEPORT CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 394.

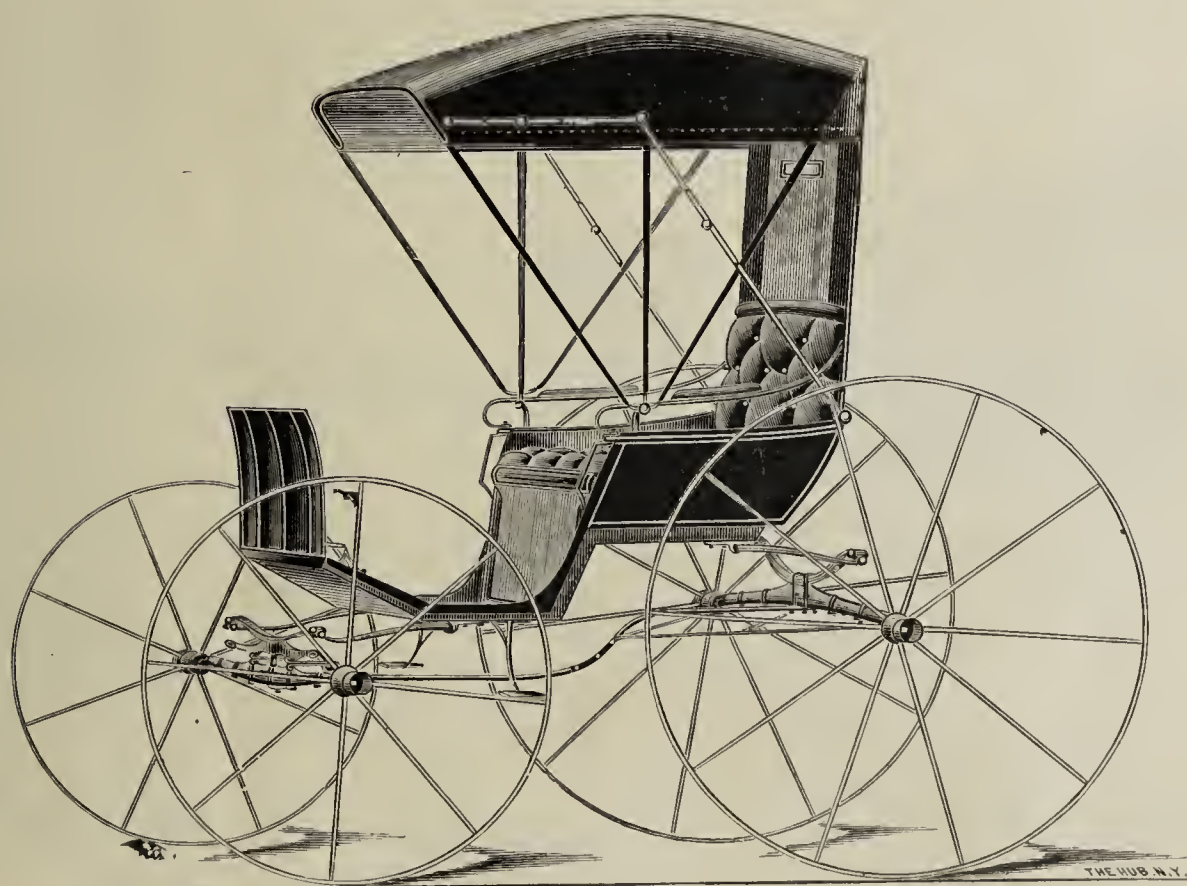


Plate No. 43. DROP-FRONT PHAETON, WITH SIX SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 395.

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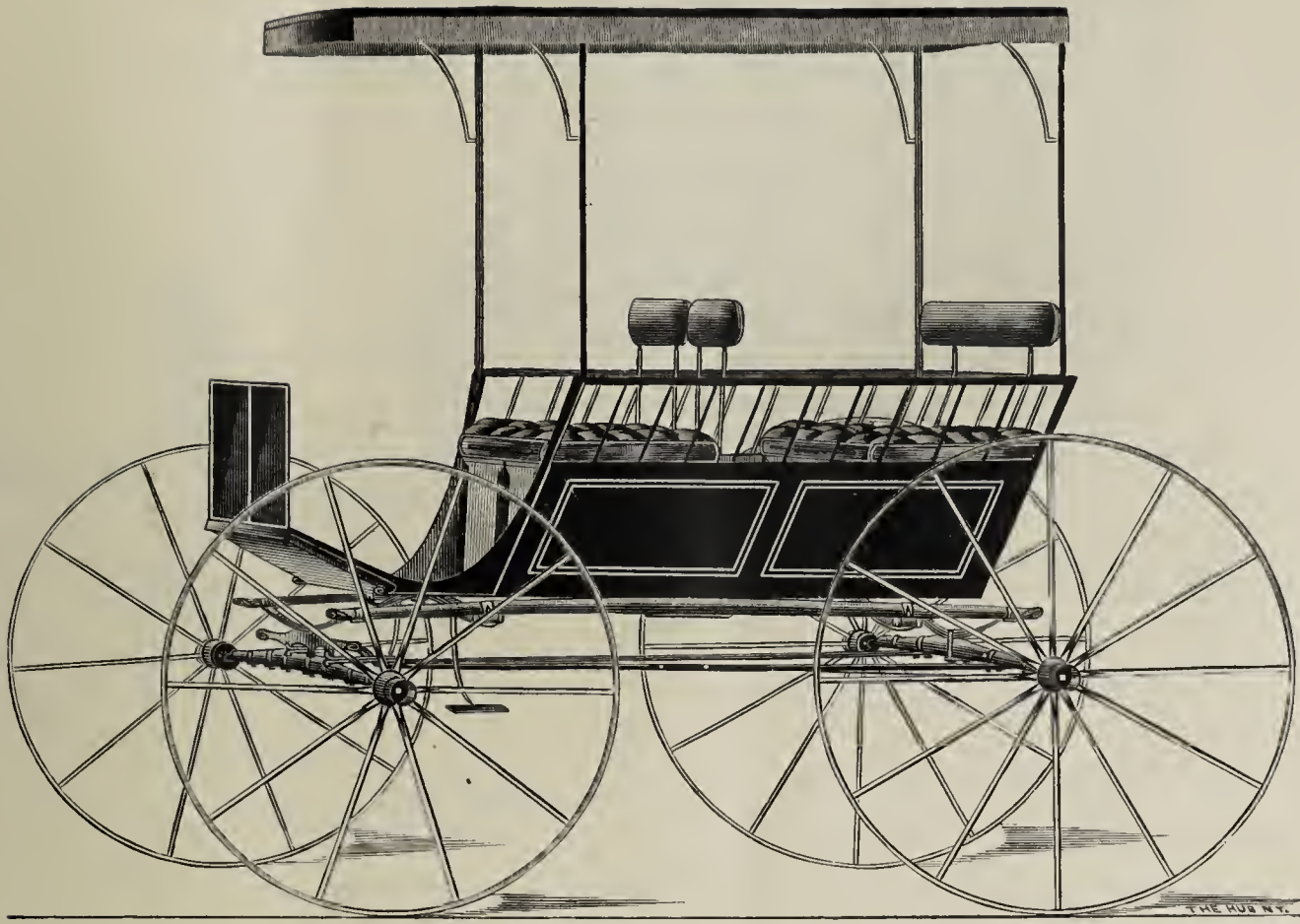


Plate No. 44. SIDE-BAR PHAETON, WITH CANOPY TOP.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 395.

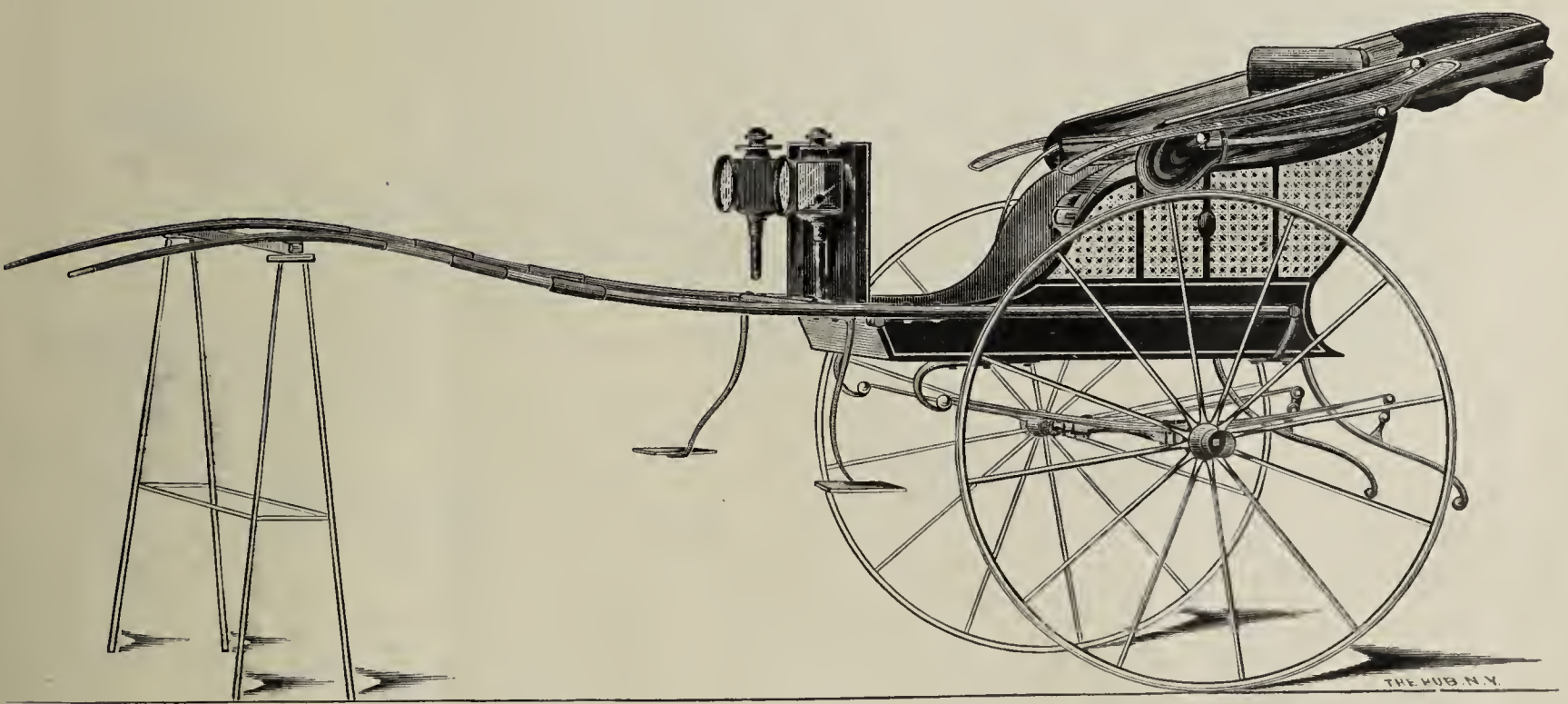


Plate No. 45. FRENCH CURRICULE CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 395.



Plate No. 46. NEW-HAVEN COUPE-ROCKAWAY.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 396.

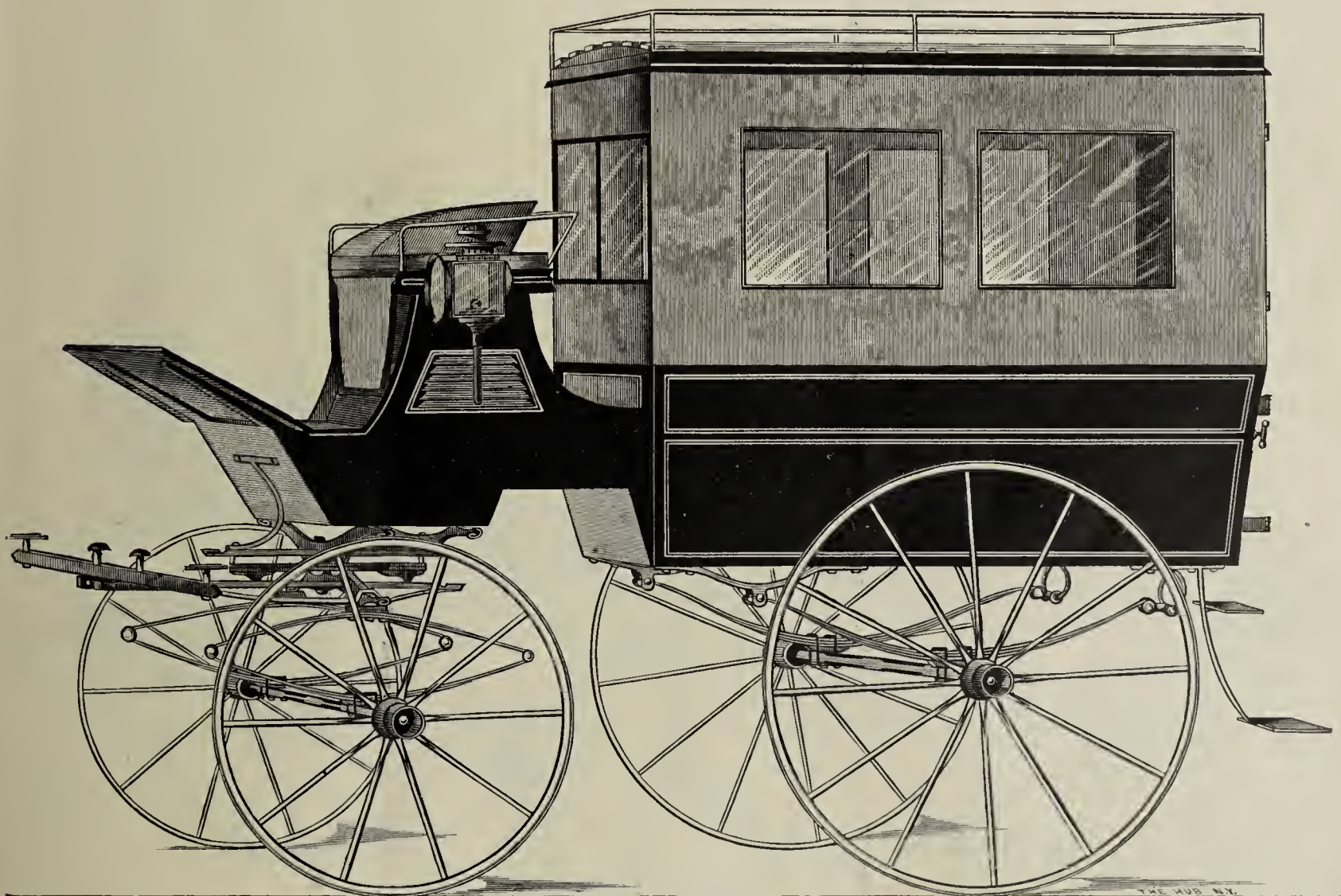


Plate No. 47. EIGHT-PASSENGER OMNIBUS, WITH ADJUSTABLE TOP.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 396.

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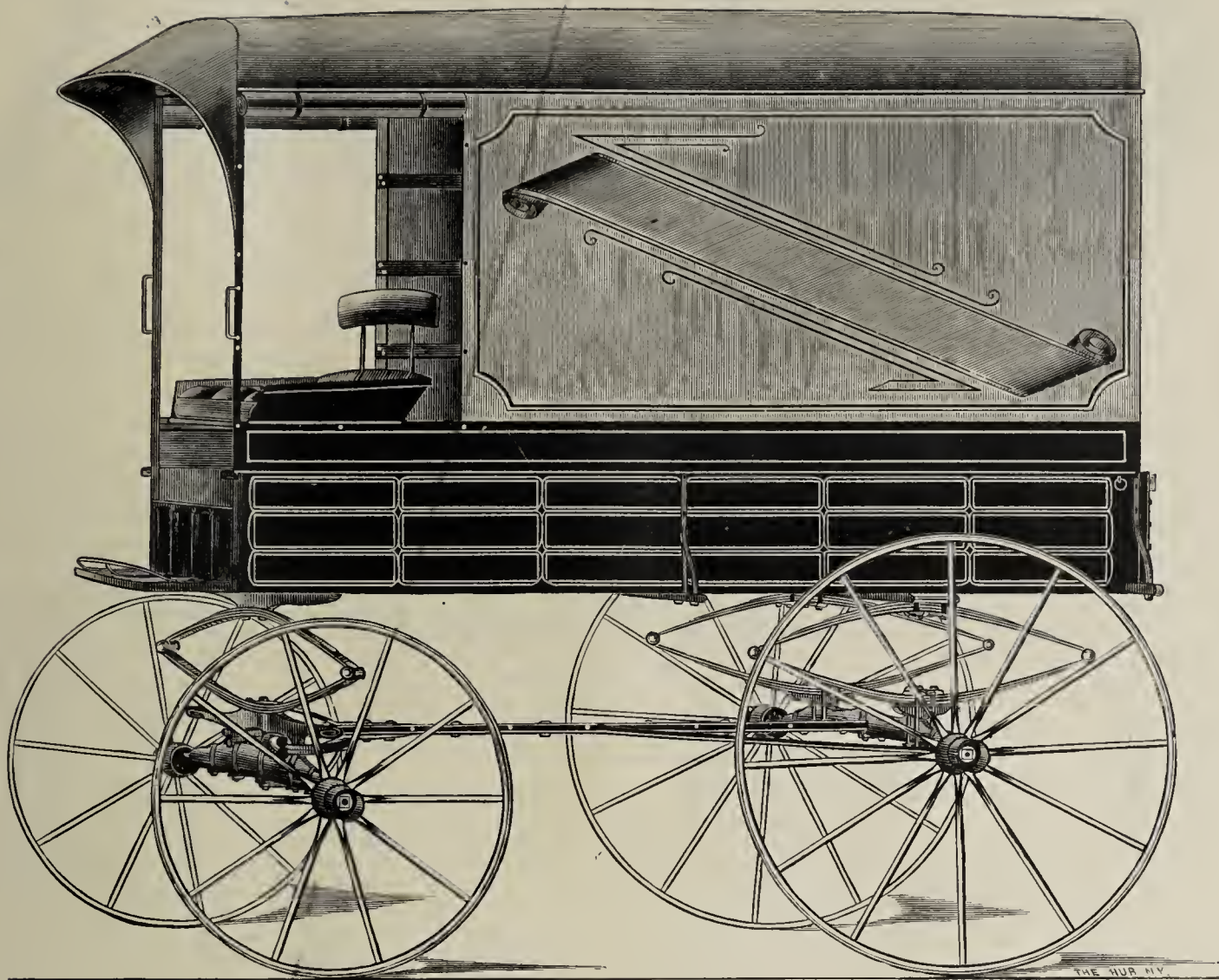


Plate No. 48. LIGHT THREE-SPRING EXPRESS WAGON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 397.

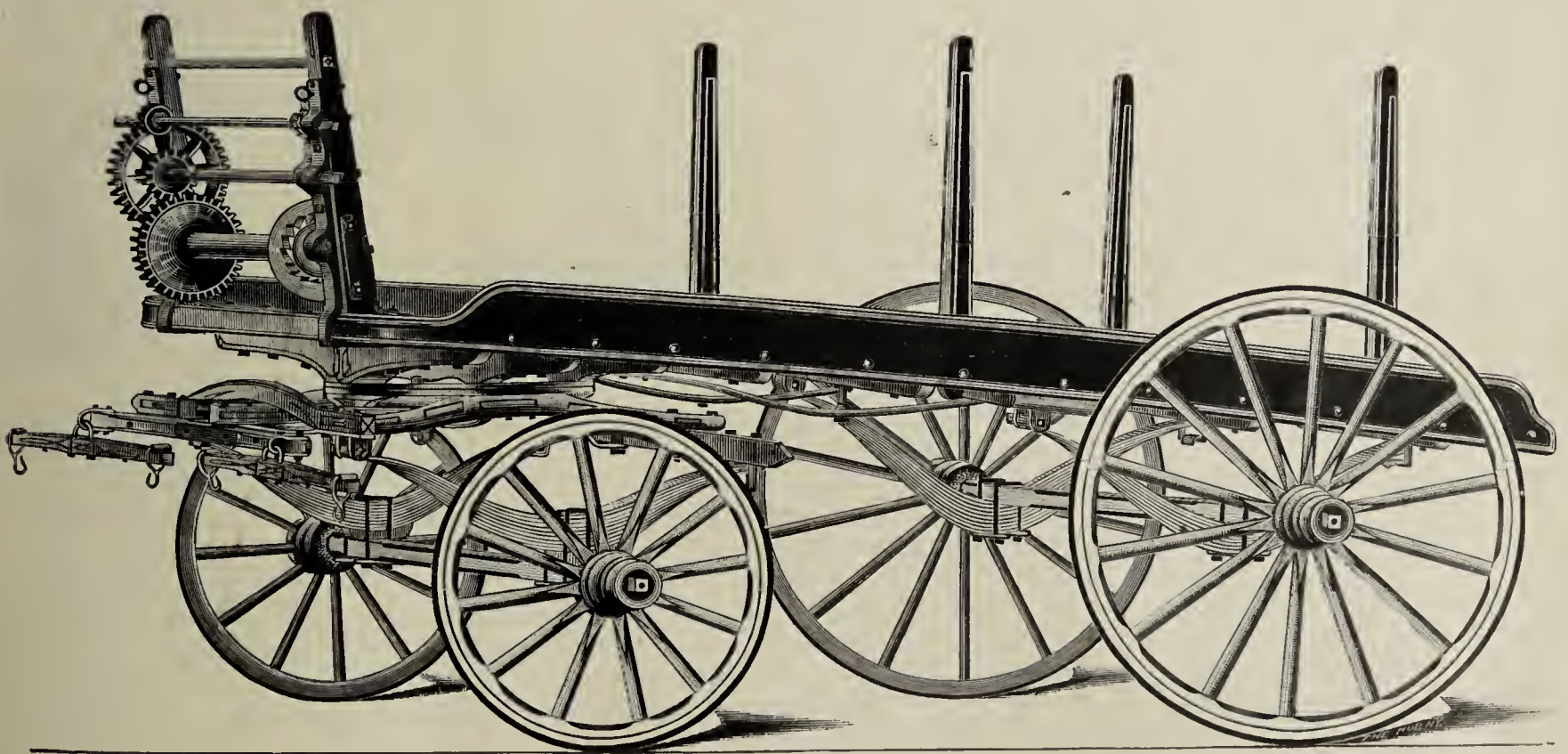


Plate No. 49. DETROIT WINDLASS TRUCK.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 397.

PROPERTY
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The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, SEPTEMBER 1, 1884.

No. 6.

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Élysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Fearson & Brother, Adelaide, South Australia.



FOURTH-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

[By Mr. Thomas Furmidge, of No. 13 Barton-street, E., Hamilton, Ontario.]

(See Loose Sheet accompanying this number.)

THE selection of Physicians' Phaetons and Buggies as the subject of your prize drawing competition was, for various reasons, a wise choice, as the field is a broad one, and not only gives ample scope for the draftsman's artistic design, but also demands from him practical knowledge of the construction of a vehicle that is expected to stand the test of constant driving over roughly-paved city streets or country roads, with credit to the builder and with safety and comfort to the occupants. The two main requirements, namely: neatness of design and practical knowledge of construction, are clearly brought out in your announcement of the subject chosen, and constitute the essential qualifications of the carriage draftsman, without which he would be unfit for such a position.

There are many points of interest that must not be lost sight of in the construction of a carriage adapted to the use of physicians, and the builder or designer of such a vehicle must give careful and thoughtful

study throughout to its proportioning and construction, and must likewise study the personal tastes and needs of the individual customer for whom it is built. Let us notice a little more closely a few of these points.

In the first place, let it be understood that the vehicle is to carry a human being whose comfort should be our first consideration. Consequently, we must design a body that will permit the occupant to assume a comfortable sitting posture, with ample leg-room, with a large, roomy seat, and with a high back. As the physician's profession necessitates his being out in all kinds of weather, we must put a top on that will protect him from the storm as well as the scorching sun. The body must also be hung low enough so as to admit of easy ingress and egress, and be suspended on springs (I care not of whose make or of what design) that will insure its easy riding; and, furthermore, it must be substantial and well proportioned, so as to guard against weak points, for, as we have already noted, it is destined for rapid transit over rough streets, and oftentimes regardless of consequences.

With all the above points in view, I have designed this Phaeton. Although I do not claim entire originality in this pattern, yet some features may be new. The main question is, is it adapted for the ends and purposes for which it is intended? This, I will leave to the good judgment of the honored jury chosen, and will feel satisfied with the result of their unbiased opinion.

To more fully explain the several drawings before us, Fig. 1 represents the side elevation, with the top down, and the dotted lines show the size and shape of top when up; Fig. 2 represents the ground plan, or half-view, as seen from the bottom. Figs. 3 and 4 show the half-front and half-back views, with the top up. Above these is given the working draft of the body, Fig. 5 being the side-elevation, 6 the cant, and 7 and 8 the half-front and half-back views.

The construction of the body is very simple. The rocker is straight throughout, and has no inclination. The back piece has $\frac{3}{8}$ in. dressed off the outside, which is equivalent to a contraction of the rocker, and this still leaves timber enough to which to fasten the bottomside and rocker-plate.

The quarter is made from a solid piece of whitewood, 2 in. thick, and is fastened to the bottomside by being glued, and then screwed from the inside, with four No. 18 screws. This quarter is shown by dotted lines on Figs. 6, 7 and 8, as it would appear before being swept off. After this piece has been dressed to the proper inclination and contraction, it should be lined across at regular intervals, and pricked off according to these dotted lines. This is a simple and sure method of giving the proper shape to the quarter, without sweeps or patterns. The panel is then sunk down $\frac{5}{16}$ in., which leaves a solid molding all around the quarter. This molding is then rounded down to within $\frac{1}{8}$ in. of the panel.

The back panel is $\frac{5}{16}$ in. thick, and is grooved into the side panel, leaving $\frac{5}{16}$ in. for a molding. This panel should be glued in; a corner-block is afterwards fitted in, which extends up and forms a support for the upper back.

Two small lock drawers are fitted underneath the seat, for the reception of instrument cases or other articles.

The top has four bows, and has a light on each side inserted between the two middle bows. This is done by making a frame of the proper size, which is secured in position by being screwed through the bows into the frame. This light is finished on the outside by a silver molding, which covers the edge of the leather. The horizontal joints are put on the inside, which allows the occupant to fold the front bow back against the second bow, without leaving the seat.

The axle-beds and perch are made from second-growth hickory, and are bent to the proper shape. These are rounded over where the clips go on; and, between these spaces, they are ovaled up, which makes a light and neat-looking finish. The perch has a plate on the bottom, $1 \times \frac{1}{4}$ in., which runs its entire length, with ties welded on at the proper places to take the clips. The spring-bars are also of second-growth hickory, and are ovaled up to correspond with the rest of the running-gear.

Fig. 2 shows the position and shape of the side braces, which are made from $\frac{3}{8}$ in. oval iron.

Dimensions.—The principal dimensions are as follows: Width across body on arm-rail at back, $35\frac{1}{2}$ in.; ditto at front, 39 in.; and ditto at dash, 30 in. Height of wheels: front, 3 ft. 5 in.; hind, 3 ft. 10 in., with tire on. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes: front, 12, and hind, 14. Diameter of hubs, $4\frac{1}{2}$ in. Length, 7 in. Front bands, 3 in., and back, $3\frac{3}{8}$ in. Length of front bands, 2 in. Tire, $1 \times \frac{5}{16}$ in., steel. Axles, 1 in. steel, swaged in center to $1\frac{1}{2} \times \frac{7}{8}$ in. Springs, double-sweep elliptic. Length of front springs, $38\frac{1}{2}$ in.; open over all, 8 in. Width of steel, $1\frac{1}{2}$ in. Number of plates, three, namely: two No. 3, and one No. 4 steel. Length of back springs, 40 in.; open over all, 9 in. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: one No. 2, one No. 3, and two No. 4 steel. Track, 4 ft. 8 in., out to out. Diameter of fifth-wheel, 16 in.

Finish.—Painting: Panels of body, dark green, and moldings, black. Running-gear, dark blue, with medium line of light blue, glazed with ultramarine. Trimming, dark green morocco, with diamond figures on top of cushion and back. The back should be made with springs, and be full and soft. Head-lining, dark green cloth. Carpet of the same color, with light figures. Mountings, silver.

The half-inch-scale colored drawing accompanying the working drawing, shows the finished job; but if objected to by the judges as not being required by the prize offer, this can be thrown out.

Respectfully submitted,

THOMAS FURMIDGE.

HAMILTON, ONT.

DESCRIPTIONS OF FASHION PLATES.

MEDIUM CABRIOLET.

(See Colored Plate No. L.)

DURING the past three years the Cabriolet has gained steadily in favor. The English quarter was formerly used almost exclusively for this class of vehicles, the "round-bottom" patterns being built but sparingly; but a desire has been manifested for greater variety in outlines, and Cabriolets with curved bottom lines have begun to appear in greater numbers. Some fine specimens have been imported from Paris, but the majority of the newer ones are now built in this country.

The sides of these Round-bottom Cabriolets are in most cases divided into two halves, the lower half being either open or closed. If closed, a panel is fastened against the inside of the rocker, and the back is then paneled down to the cross-bar. In the design represented by our Colored Plate, we have retained the English quarter for the hind seat. The back corner-pillar has a trifle more fullness than usual, and no rocker is shown in the center of the body at the bottom, the bottomside being on a line with the bottom.

The back bottomside and corner-pillar are made of one bent piece, and inclined and contracted. If the bottomside and back corner-pillar consist of two pieces, as is frequently the case, the bottomside can then be dressed square, and the corner-pillar only is then inclined. We much prefer, however, the bent bottomside and corner-pillar. The latter perhaps cause a trifle more work in dressing, but this will be fully compensated by the time saved in framing. Moreover, the result has the further advantage of having no joints to show at the corners, which are constant eyesores, and cannot well be prevented, as nearly the whole weight of the body bears on that point.

The bottomside reaching from the hind bottomside to the wheel-house is made of one piece, and must be fitted carefully to the bottom of the hind bottomside. A good way would be to have a short tenon fastened on the lower piece, mortised into the bottom of the hind bottomside.

The frame-work for the front is made in the usual manner. The boot panel is finished in front as the drawing indicates, and the finishing-piece is glued on top of the panel. The child's-seat is turned up and folded into the top of the boot.

The bottom line of the boot, in this pattern, will not permit of sliding the seat into the boot. In place of that, the seat could be hinged to a bar framed across the body, and then dropped, which would be the simplest way, but this has the disadvantage of bringing the cushion outside, and exposing it to dirt and dust. Furthermore, the front of the seat would have to be supported by iron or wooden legs, which would not make a very neat appearance. If folded into the top part, a plate is screwed to the end of the seat, having a pivot projecting over the end of the seat, which fits into a hole on the rocker-plates. This hole is drilled previous to fastening them to the rocker. An iron stop is also screwed into the rocker-plate to prevent the seat from turning down. The method of sliding the child's-seat into the boot is preferable, being decidedly the neatest finish, and it should be applied whenever practicable.

Dimensions.—Width of body at the arm-rail in center, 4 ft.; ditto at back at the arm-rail, 42 in.; ditto at bottom of back, $38\frac{1}{2}$ in.; and ditto

at dash, 31 in. Turn-under, 6 in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 16 screws. Height of front wheels, 2 ft. 8 in.; and hind, 3 ft. 8 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, 6 in.; and hind, $6\frac{1}{4}$ in. diameter. Front bands for front hubs, $4\frac{1}{2}$ in., and back, $5\frac{1}{8}$ in. diameter. Front bands for hind hubs, $4\frac{5}{8}$ in.; and back bands, $5\frac{3}{8}$ in. diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round-edge steel.

The front springs are elliptic, 38 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are platform. The side-springs are 41 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next No. 3, and the last two No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The cross-spring is $36\frac{1}{4}$ in., from center to center, with $4\frac{1}{2}$ in. arch over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the rest No. 3 steel. Axles, $1\frac{1}{4}$ in., Collinge patent. Track: front, 4 ft.; and hind, 4 ft. 10 in., from out to out.

Finish.—Painting of the sides and back panel of the hind seat, dark green; and moldings and boot-panels, black. The moldings are striped with a fine line of carmine. Running-gear, carmine, with a broad stripe and two medium lines of black, at a distance. Trimming, green goat-skin for the back and cushion top, and green cloth for the side quarters, fall, head-lining and driver's-seat. The back, cushion and sides are laid out in large squares. Broad-lace goes around the edges of the fall. Tufted work at the center of the fall will have a fine appearance. Carpet, green, with black figures. Mountings, silver.

BRIDGEPORT CART.

(See Fashion Plate No. 42.)

THE accompanying design represents one of the latest productions of Mr. Geo. W. Kerr, of Bridgeport, Conn., who is developing an important specialty in two-wheel work.

The general appearance of this Cart is light and well proportioned. The rear of the body is concaved, and the front sweep harmonizes with the rear. The sides are concaved, but less than the rear. The body itself is not difficult to construct. The bottom sill is made wide enough for one of the spring-irons to be bolted to it, and it is made of the best body ash. The sunken bottom is fastened to the inside of the bottom sill by screws and glue. A depth of $1\frac{1}{8}$ in. ash is sufficient for this sunken bottom. The side and rear panels are mitered at the corner-pillar, although this can be dispensed with if preferred, and the side panels are then glued over the corner-pillar and rear panel. To avoid the showing of the joint, the ends of the side panels are made half-round, forming a bead. The molding on the top edge of the side is glued to the outside of the panel. If preferred, the top-rail of the body can be made of ash, and it is then lapped to the middle and the corner-pillar. The side panel is then put into a groove. The extended part of the middle pillar is even with the top-rail on the outside. A horizontal rail is let into the middle and corner-pillar on the inside of the body, for the seat-board or frame to rest and slide on.

The attachment of the shafts to the body in front is effected by anti-horse-motion spring-irons, of special design, patented by Mr. Kerr. The rear end of each shaft is loose, and moves in a slot formed by two plates, connected by two bolts. These two bolts are incased in a rubber block. The rear end of the shaft moves between the rubber blocks, thus avoiding rattling. The slot is fastened to the body by two bolts. The middle pillar is made wide enough for the reception of the center bolt of the slot. For more detailed information concerning this improved device for attaching the shafts to the body, we refer the reader to the patentee, or to the advertising columns of *The Hub*.

Dimensions.—Width of body on top at the middle pillar, 38 in.; and at bottom, 32 in. Height of wheels, 3 ft. 10 in., without tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{1}{2}$ in. diameter. Front bands, 3 in.; and rear bands, $3\frac{3}{8}$ in. diameter. Length of front bands, 2 in. Length of hubs, 7 in.

The springs are elliptic, 38 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first plate No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 4 in. Size of holes, $\frac{5}{16}$ in. Axle, $1\frac{1}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of body-panels, dark green; and sunken rocker and moldings, black. Running-gear, green, a shade lighter than the body, with a heavy stripe of black and two fine lines of light green at a distance. Trimming, green cloth. The cushion top is laid off in biscuits. Carpet, green, with black figures. Mountings, silver.

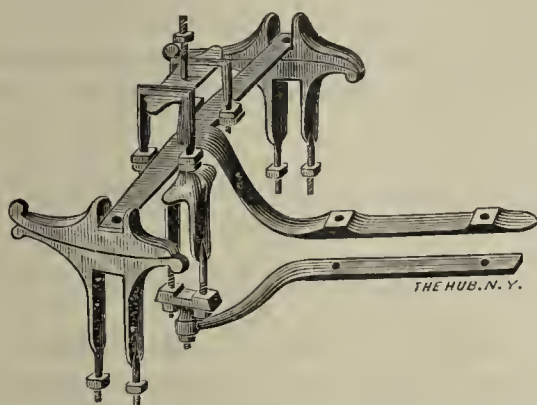
DROP-FRONT PHAETON, WITH SIX SPRINGS.

(See Fashion Plate No. 43.)

THIS drawing has been developed from a photograph sent us by the Mulholland Spring Co., of Dunkirk, N. Y., who have also kindly furnished us with the principal measurements.

The body has a light and graceful appearance, and is suspended on the Mulholland spring, consisting of a combination of end and torsion springs, the torsion springs forming the medium by which to attach the body to the running-gear, the inner arms of the torsion springs being fastened to the body at both front and rear. A piece of 1 in. ash is let into the bottom instead of a half-inch whitewood panel, as is usually the case. The sides of the body are of such dimensions as to give the body a light and well-proportioned appearance. The sides and back can be made either of 1 in. whitewood or paneled. In the latter case regular frame-work must be applied. The sides of the body have considerable flare or turn-under. The bottomsides, from the middle-pillar to the dash, are 2 in. thick; and, from there to the back, $1\frac{1}{4}$ in. The imitation stanhope-pillar is made of whitewood, fitted to the body, and dressed in a concavo-convex sweep. The moldings are all worked on.

The most noteworthy feature of the running-gear is the attachment of the front end of the perch to the axle, by means of E. D. Clapp & Co.'s Auburn single-perch irons (see special cut).



These irons permit of hanging the body low, the reach being bent down to such a degree as to come level with the bottom of the front axle. The rear end of the perch is secured under the back axle by a T-iron, which receives the spring-clips, and is let into the top of the reach and bolted to the perch. The same bolts also fasten the bottom perch-plate.

The principal advantage claimed by the combination of end and torsion springs, as compared with plain elliptic springs, is that, by dispensing with heavy elliptic-spring body-loops, a saving of from 40 to 50 lbs. in weight is made. It also saves the time otherwise required for making and fitting the spring-bars. A carriage supplied with such springs rides easily, and without any end pitch or side motion. The body can be hung very low, and wheels of good height may be used, which latter condition is by no means to be despised, especially on country roads. For further particulars concerning these springs, see our advertising department.

Dimensions.—Width of body on top of seat, 41 in., from out to out; ditto at the back, 39 in.; and at the dash, 27 in. Turn-under, $5\frac{1}{2}$ in. Rocker-plates, $1\frac{3}{4} \times \frac{5}{16}$ in., fastened with $1\frac{1}{4}$ in. Nos. 12 and 14 screws. Height of wheels: front, 3 ft. 4 in.; and rear, 4 ft., without the tire. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{16}$ in. Number of spokes, 14, all around. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{5}{8}$ in. diameter. Front bands, $2\frac{1}{4}$ in.; and back, $2\frac{7}{8}$ in. diameter. Length of front bands, $1\frac{1}{2}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $\frac{7}{8} \times \frac{3}{16}$ in., round-edge steel. Axles, $1\frac{1}{8}$ in., steel, fan-tail pattern. Track, 4 ft. 7 in., from out to out. The axle-bed in front drops $1\frac{1}{2}$ in. in the center, and is $1\frac{1}{2}$ in. deep at the fifth-wheel bearing. The rear axle-bed is arched $2\frac{1}{2}$ in., and is $1\frac{9}{16}$ in. at the spring-bearing. The fifth-wheel is $12 \times \frac{5}{8}$ in., and is cut off on top and bottom (see drawing).

Finish.—Painting of the body, black; running-gear, black, striped with a double fine-line of red, glazed with carmine. Trimming, blue cloth. The back is finished with a small row of biscuits on top, and two rows of piping below. The cushion top is laid off in large squares. Carpet, dark blue, with light blue figures. Mountings, silver.

SIDE-BAR PHAETON, WITH CANOPY-TOP.

(See Fashion Plate No. 44.)

THIS design will make an attractive and useful vehicle for summer use, and it should not be expensive. To build such a body does not require special skill, and the amount of material required is not great, while the cost of constructing the running-gear will not differ materially from other vehicles of the same class. This body is shown suspended on the J. B. Brewster springs, but Timken or other springs of a similar character are equally applicable. Elliptic springs might be used if desired, but in that case the carriage-part would have to be made longer.

For the top section of the body or seat, the side frame-pieces are the full length of the body, and project over the body 1 inch on the outside, and are even on the inside with the top-rail of the body. The cross-pieces for the rear seat are lapped to the side-pieces. The front seat is split in halves, and the cross-pieces for the right-hand seat are lapped to the side-pieces as on the rear seat. The inner end or center is supported by two uprights connected by a cross-piece on top and bottom. The movable half of the front seat is hinged in the center, and rests on the outside on a cleat fastened to the top-rail of the body, and is held in position by a lever lock. The top-rail of the seat is made light, and $\frac{5}{8} \times \frac{3}{4}$ in. will be sufficient. The sticks are $\frac{3}{8} \times \frac{1}{2}$ in., and are V-shaped. The whole upper section of the seat is put together first, and then fastened to the stanhope-pillar, and the frame-pieces are afterward screwed to the top-rail of the body.

The front or stanhope-pillar is made of ash, and of one piece, projecting on the outside of the bottomsides about $\frac{3}{8}$ in. It has a shoulder on the inside, $\frac{3}{8}$ in., the thickness of the side-panel. The panel is rabbeted to the stanhope-pillar and is glued to the same. The sides and the back of the body are molded off as per drawing, and the squares should be distinguished from the rest of the body in the painting. The canopy top is made and attached to the body in the usual way.

Dimensions.—Width of body on top of seat-rail, $38\frac{1}{2}$ in.; ditto bottom, $32\frac{1}{2}$ in.; ditto top of body, $30\frac{1}{2}$ in.; and ditto bottom, $28\frac{1}{2}$ in. Height of wheels: front, 3 ft. 6 in., and hind, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, 4 in. diameter. Front bands, $2\frac{3}{4}$ in., and back bands, $3\frac{1}{4}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{16}$ in., round-edge steel.

The front end-spring is $32\frac{1}{2}$ in. long, from outside hole to outside hole, with $2\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first three No. 3, and the last one No. 4 steel. The hind end-spring is of the same length, and has the same set as the front spring. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next No. 3, and the last two No. 4 steel. The front cross-spring is $32\frac{3}{4}$ in., from out to out, with $3\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first three plates No. 3, and the last No. 4 steel. The hind cross-spring has the same length and same width of steel as the front one. The set is $3\frac{7}{8}$ in. over all. Number of plates, four, namely: the first one No. 2, the next two No. 3, and the last No. 4 steel. Axles, $1\frac{1}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting: body between the moldings on the sides and back, dark green, and the remainder black. Running-gear, carmine, with a narrow stripe and two fine-lines of black. Trimming, green cloth throughout, made up either plain or in biscuits for the cushions. Carpet, plain green. Mountings, silver.

FRENCH CURRICLE CART.

(See Fashion Plate No. 45.)

TWO-WHEELERS still continue favorites in almost every section of the country. It is true that the motion in some of them is far from comfortable, judging from the jolting perceptible, especially on Village Carts; but this defect is now curable to a great extent, if not altogether, thanks to the inventive genius of the trade, and new inventions claiming to still further reduce horse-motion are still of frequent occurrence.

The original Cart from which our present Fashion Plate was reproduced, was built by Messrs. Million, Guet & Co., of Paris, several of whose Carts are now running in this city, all of which are supplied with three-bow tops.

The sides of the body represented are straight lengthwise, but flared out from bottom to top. Bent wood will be preferable for the corner-pillar. This pillar should be left wide enough to bring the mortise in from the back face of the corner-pillar, and also to leave substance enough for a good tenon. The molding from the pillar and bottom sill forms a miter joint at the back and side.

The back panel is put into a groove on the sides and top-rail, but is glued on to the bottom cross-bar, and the molding is nailed on afterward. The side-panels are put into a groove all around, but if this method should be objected to on account of the extra work it requires in the frame-work, the panel could then be glued on over the arm-rail wing, front and bottom. Under all circumstances, however, we would recommend putting the panel into the groove at the back corner-pillar.

It will be noticed that the distance from the back corner-pillar is longer at the arm-rail and center molding than is generally allowed for this class of Carts. This, however, does not interfere with the good appearance of the vehicle; but, on the contrary, it will be admitted that the length of the body is well proportioned to the height.

The horizontal molding near the center of the sides is continued around the back. There are three upright moldings on the upper section of the side panel, and one has a medallion. This part of the body, on both the

sides and back, is frequently finished with an imitation of cane-work; if preferred, it may be left plain, but in the latter case, the upper part should be painted in a different color, to form a contrast with the lower section, which is invariably painted black.

The seat is $13\frac{1}{2}$ in. from the top of the bottom, and sets in at that height about 7 in. from the front face of the wing. The body is hung on side-springs, in the manner indicated, the rear end moving in a shackle. On several Carts of this pattern built by the Paris firm mentioned above, the springs and loops are connected by leather braces, which give the body an easy motion.

The extension of the rear body-loops below the spring is for the purpose of preventing the body from striking the ground when the shafts are raised. The shafts are attached to the body in front by means of a clip made somewhat in the form of the jack-clip used for the shafts on four-wheeled vehicles, and at the rear end in a square ferrule, with a bolt passing through for better security. This ferrule is welded to a stay, which is bolted to the bottom of the body.

Dimensions.—Width of body on top, 40 in.; and at bottom, $35\frac{1}{2}$ in. Height of wheels, 4 ft. 3 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $6\frac{1}{2}$ in. diameter. Front bands, $4\frac{3}{4}$ in., and back bands, $5\frac{1}{2}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 8 in. Tire, $1\frac{1}{4} \times \frac{1}{2}$ in., round-edge steel.

The springs are 47 in. long, from out to out, with 4 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first plate No. 2, the next two No. 3, and the last two No. 4 steel. Axle, $1\frac{5}{16}$ in., Collinge patent. Track, 4 ft. 4 in., from out to out.

Finish.—Painting: body, black, for the lower section, and imitation canework for the upper part. Running-gear, black, with a broad stripe of blue and two fine lines of yellow at a distance. Trimming, blue cloth throughout. No full back is attached to the seat, but only a wide lazy-back, trimmed smooth. Smooth trimming is adhered to likewise for the cushion top. The sides of the body on the inside are covered with blue cloth. Carpet, plain blue. Mountings, brass.

NEW-HAVEN COUPÉ-ROCKAWAY.

(See Fashion Plate No. 46.)

WITHIN the past ten or twelve years, manifold changes have taken place in the outlines, mode of construction and finish of Rockaways, and it must be acknowledged that the general form, especially of the body, has been improved in every way. Great improvements have also been introduced in the running-gears, which are now made either with or without a perch, and considerably lighter than in former years, yet quite as strong. Greater taste, too, is displayed in the trimming and painting, and the interiors of first-class Rockaways are now provided with all the conveniences common to broughams, landaus and coaches, such as card-cases, comb-cases and mirrors, for instance; and in some instances a bell is attached, and fastened under the driver's-seat.

Rockaways are now built in a great variety of styles, and follow as a rule the outlines adopted for the bodies of the heavier classes of vehicles, whose names they frequently take as prenomens, as Landau-Rockaways, or, as in this instance, a Coupé-Rockaway. Alterations in the outlines are at present mostly confined to the front, and there principally at the wheel-house. The shape of the wheel-house is made either angular or curved, the latter being adopted on this drawing. The sides of the rockers forming the angular wheel-house are either straight or curved at the front and back. The latter method, although it has prevailed for some time past, is still favored by many leading builders. The front or drivers'-seat is of sufficient depth to give good seatroom when the division front is in. No seat-panel is used on the driver's-seat; but a piece of whitewood is glued against the rockers, being worked out in the shape of a leather valance, the same way as around the driver's-seats of coaches.

It is not absolutely necessary that the bottom panel at the wheel-house should follow the sweep of the rockers, although it will produce a superior job. If preferred, the seat-bottom can be utilized for the top panel, and the front and back panels are then made straight. The latter way is less expensive, being more easily fitted, and doing away with a double bottom in the center.

The most notable change on the rear part of this body is the shape of the light in the rear quarter, where, instead of forming an angle at the bottom toward the corner-pillar, the light forms a short curve, which produces a pleasing effect. The rear corner-pillar has a full curve, and leans out at the back. The pillar and back bottomside are made of one bent piece, reaching above the arm-rail, and spliced there with the upper portion of the back corner-pillar. The body hangs low, or about 24 inches from the floor.

Dimensions.—Width of body at the hinge-pillar, 49 in.; ditto at the coupé-pillar, $46\frac{1}{2}$ in.; ditto at the back, 41 in.; and at the dash, 31 in.

Turn-under, 3 in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. or $1\frac{1}{2}$ in. Nos. 18, 16 and 14 screws. Height of wheels, 3 ft. front, and 3 ft. 11 in. rear. Depth of rims, $1\frac{3}{8}$ in. Size of spokes, $1\frac{5}{16}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, front, $4\frac{1}{2}$ in.; and rear, $4\frac{5}{8}$ in. diameter. Front bands, $3\frac{1}{4}$ in.; and back bands, $3\frac{3}{4}$ in. diameter. Length of front bands, 2 in. Length of hubs, 7 in.

The front springs are elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on top, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are platform. The side-springs are 39 in. long, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first plate No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The cross-spring is $38\frac{1}{2}$ in. long, from center to center, with $4\frac{1}{2}$ in. set over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Axles, $1\frac{1}{4}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of lower quarters, doors and back panels, dark blue; and upper quarters, upper back panel and moldings, black. The moldings are edged with a fine line of deep orange on the inner edge. Running-gear, blue, a shade lighter than the body, with two light stripes of deep orange. Trimming, blue morocco for the lower backs and cushion tops, and blue cloth for the lower and upper quarters, upper back and doors. Broad-lace is used around the top-rails, doors and rear fall. Large figures are to be used for the backs and cushion tops, either diamonds or squares. Carpet, blue, with black figures. Mountings, brass.

EIGHT-PASSENGER OMNIBUS, WITH ADJUSTABLE TOP.

(See Fashion Plate No. 47.)

OMNIBUSES with adjustable tops are mainly called for by private parties, and are frequently seen at the fashionable summer resorts. A fine imported specimen came to our notice a short time ago, built by Messrs. Million, Guet & Co., of Paris, which is owned by a gentleman in this city. The shape of the body was of the usual Omnibus pattern, with curved corner-pillars back and front. An iron railing was attached to the top of the body, with a wire screen adjusted to the inside of the railing, thus preventing small parcels from falling out. The brake was operated by a wheel at the driver's-seat. The painting was in subdued colors, the lower panels being dark green, and the moldings and upper parts of the body black, while the running-gear corresponded with the body, green being the predominant color.

The accompanying design is of English origin, the sketch and principal measurements having been kindly furnished us by Mr. M. Kent, of Epping, England, for which he will please accept our thanks. We have introduced several slight alterations in the front part, but not enough to interfere with the general effect of the original. This omnibus is intended for four persons on each side, exclusive of the driver. The outlines of the body are plain, but in good taste. The boot is heavy, a characteristic of English styles, and sets in about $5\frac{1}{2}$ inches from the outside of the body at the bottom. This causes the bottom sill to be made the same width. The boot rocker is glued to the inside of the sill, and should extend a sufficient distance toward the back end of the body so that the boot rocker can be swept off in an easy line toward the bottom sill, coming to a feather-edge, which allows a better fitting of the rocker-plates, and also makes a stronger job than to form an angle where the boot-rocker and bottom sill connect. The latter method we have seen practiced in several shops, but we cannot approve of it. The front corner-pillar is left wide enough to fill the space from the outside of the bottom sill to the boot rocker, and is secured to the boot rocker by stout screws, and lapped to the bottom sill. The moldings of the front pillar are lapped over the bottom sill, forming a miter joint with the molding of the sill, to avoid cross-grains. A rabbet is worked on the front-pillar deep enough to allow for the thickness of a panel and molding. The front panel reaches from the bottom to the top of the top-rail of the lower body; it is fitted closely between the boot rocker and the front-pillar, and is even with the top-rail. After fitting, the panel is glued on, and the moldings are then fitted between the front-pillars and rockers, and secured by nails and glue, or, wherever possible, glued with clamps first and then nailed. The boot-pillars can be made light, 1 in. thick being quite sufficient.

The front rocker, being of great depth, need not be very thick, and $1\frac{3}{8}$ in. will be found ample. The toe-board brackets are lapped to the rockers, the joints being covered by the front panel. The panels on the sides and back of the body are put into a groove all around. The molding dividing the sides and back into two sections is glued and nailed, if the whole side consists of one panel; but if two panels are used and placed in a groove, the rail dividing the sides into two sections is then framed

even with the outside of the body. The horizontal rail may also be framed $\frac{3}{8}$ in. from the outside of the pillars. The joint of the panels is then made in the center of the rail, and is covered by a molding. The finish of the sides is continued around the back of the body.

The upper part of the body is adjustable, and is secured to the lower part by 8 to 10 thumb-screws. Whenever the top is removed, a lazy-back is substituted. An iron railing is fastened on the top of the body, to keep the baggage from falling over, and wooden slats are fastened lengthwise along the top to prevent the paint from being bruised by the baggage.

The running-gear is made strong, but simple. The futchels are straight, and the splinter-bar is framed on to them, and secured by strong plates, run through to the back, under the bed, to take countersunk bolts. The size of the bottom bed at the center is 3 in., and $2\frac{1}{2}$ in. at the fifth-wheel.

The futchels are $1\frac{3}{4} \times 1\frac{1}{2}$ in.; and the splinter-bar, $2 \times 1\frac{7}{8}$ in. The front of the wheel-irons has two stays branching out to take the splinter-bar. The size of the top carriage-bed in the center is 3 in. \times $2\frac{1}{2}$ in., and at the end, $1\frac{1}{2} \times 1\frac{3}{8}$ in., with one center bar, $2\frac{1}{2} \times 1\frac{1}{2}$ in. Fifth-wheel, 24 in., from out to out, and $\frac{9}{16}$ in. thick. The splinter-bar has two open eyes attached to take the shafts, in case the vehicle is used for one horse.

Dimensions.—Width of body on top and at center, 52 in.; ditto bottom, 48 in.; and ditto at the toe-board, $36\frac{1}{2}$ in. Rocker-plates, $3\frac{3}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Height of wheels: front, 3 ft. 7 in.; and rear, 4 ft. 3 in., without the tire. Depth of rims, $1\frac{3}{4}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{7}{16}$ in. Hubs, $6\frac{1}{2}$ in. front, and $6\frac{3}{4}$ in. rear. Front bands for front hubs, $4\frac{3}{4}$ in.; and back bands, $5\frac{3}{8}$ in. diameter. Front bands for rear hubs, 5 in.; and back bands, $5\frac{7}{8}$ in. diameter. Length of front bands, 2 in. Length of hubs, 8 in. Tire, $1\frac{1}{2} \times \frac{1}{2}$ in., steel.

The front springs are 39 in. long, from out to out, with 11 in. opening over all. Width of steel, 2 in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 4 in. Size of holes, $\frac{3}{8}$ in. Half elliptics are used for the hind running-gear, 46 in. long, from out to out, with 7 in. set over all. Width of steel, 2 in. Number of plates, six, namely: the first three No. 2, and the last three No. 3 steel. Axles, $1\frac{1}{2}$ in., Collinge patent. Track, 4 ft. 5 in. front, and 4 ft. 10 in. rear, from out to out.

Finish.—Painting of panels on the lower part of the body, dark green; and moldings and upper part of the body, black. The moldings are striped with a fine line of vermilion. Running-gear, vermilion, with a broad stripe and two stout lines of black. Trimming, green goatskin for the interior, and cloth for the driver's-seat. The interior of the body is laid off in tufts. Carpet, green, with black figures. Mountings, silver.

LIGHT THREE-SPRING EXPRESS WAGON.

(See Fashion Plate No. 48.)

WE frequently receive inquiries for drawings of Express Wagons which can be built at a moderate expense, and the pattern represented in this Fashion Plate fills this bill. It belongs to the lighter class, and has to be constructed accordingly.

The variations admissible on such wagons are limited. In former years the front pillar of the body was framed back from the front end of the panel 3 or 4 in., which is still adhered to in many instances; but the style which is most popular now, and which is largely followed by our best wagon-makers, is to frame the front corner-pillar even with the front end of the panel, and the corner is then rounded off. This is a great improvement over the old method.

For the bottom sills and rest of the framework, oak or white ash should be used, the former being preferable. The sills are $1\frac{1}{8} \times 3$ in. The top-rails are $\frac{1}{8} \times 1\frac{1}{8}$ in. The uprights between the front and back pillars are $\frac{3}{4} \times \frac{5}{8}$ in.; and the horizontal rails are $\frac{5}{8}$ in. square. The front and rear corner-pillars are 3 in. wide and 1 in. thick. The corner-pillars and uprights are framed level with the sill and top-rail. The horizontal rails are let in from the inside of the corner-pillars.

The top is in most cases made to shift. A good and inexpensive mode would be to have three plates made long enough to reach to the top of the plain piece above the top-rail of the body, and project through the bottom of the sill, enough for the reception of a nut and washer. Three short plates are made for the outside of the top piece, to project over the bottom edge $\frac{1}{2}$ in. The bottom end is rounded off, and the plate is made half-round on the outside. These three plates are riveted to the top frame-piece, one near the front, one near the rear end, and the third as near the center as possible. The outside plates are placed opposite the inner ones, and are riveted together. It will be seen that, by this process, the top can be easily removed by merely loosening the three bolts on each side. The inner plates hold the top firm to the body, while the outer plates keep the same from slipping.

Another way would be to put about three or four dowels into the bottom of the bottom frame-piece of the top. The outside plates could

then be dispensed with. The inner plates, instead of extending through the sills, might form an angle at the top of the sill for the insertion of a thumbscrew.

The bottom frame-pieces for the top are usually made of whitewood or pine. This is done to reduce the weight of the top as much as possible. The bows are lapped to the frame-pieces. A number of narrow slats are nailed across the top, at equal distances, about 9 in. from the top of the bows. A piece of ash is fastened to the bows below the last thin strap, on which to nail the canvas and drip-molding. This method is highly preferable to that of letting about five pieces into the bows even with the top face, at equal intervals, or three such pieces, as is sometimes the case where cheapness is desired; as, by the latter method, the covering of the top is liable to sink in between the bows, producing a slovenly appearance. These last-named pieces are about 1 in. thick, and are let into the bows level with the top face.

The sides and back of the seat are made of whitewood or maple, secured to the top of the seat-frame, or, where cheapness is desired, to the top of a board forming the seat. The seat is secured to raisers by screws. The raisers rest on cleats fastened against the top-rail of the body. It is necessary to be very exact, when framing the body, to make good joints, especially where the uprights and horizontal pieces of the sides of the body connect.

Dimensions.—Width of body, 42 in. over all. Height of wheels: front, 3 ft. 2 in., and rear, 4 ft., without the tire. Depth of rims, $1\frac{3}{8}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $5\frac{1}{2}$ in. diameter. Front bands, 4 in., and back, $4\frac{3}{8}$ in. diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, 8 in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in.

The front spring is elliptic, 36 in. long, from out to out, with 11 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first three No. 2, and the last two No. 3 steel. Holes apart, 4 in. Size of holes, $\frac{3}{8}$ in. The rear springs are elliptic, 37 in. long, from out to out, with 12 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first three No. 2, and the last two No. 3 steel. Holes apart for the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. The bottom half is clipped to the axle and axle-bed. Axles, $1\frac{5}{8}$ or $1\frac{3}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body-panels, dark green. The framework is ornamented with white and yellow hair-lines. Running-gear, yellow, with a broad stripe and two stout lines of black. Trimming, black enameled duck for the cushion.

DETROIT WINDLASS TRUCK.

(See Fashion Plate No. 49.)

THIS design represents a truck built by Messrs. E. Chope & Sons, of Detroit, Mich. Its carrying capacity is seven tons, and its construction must necessarily be heavy and strong.

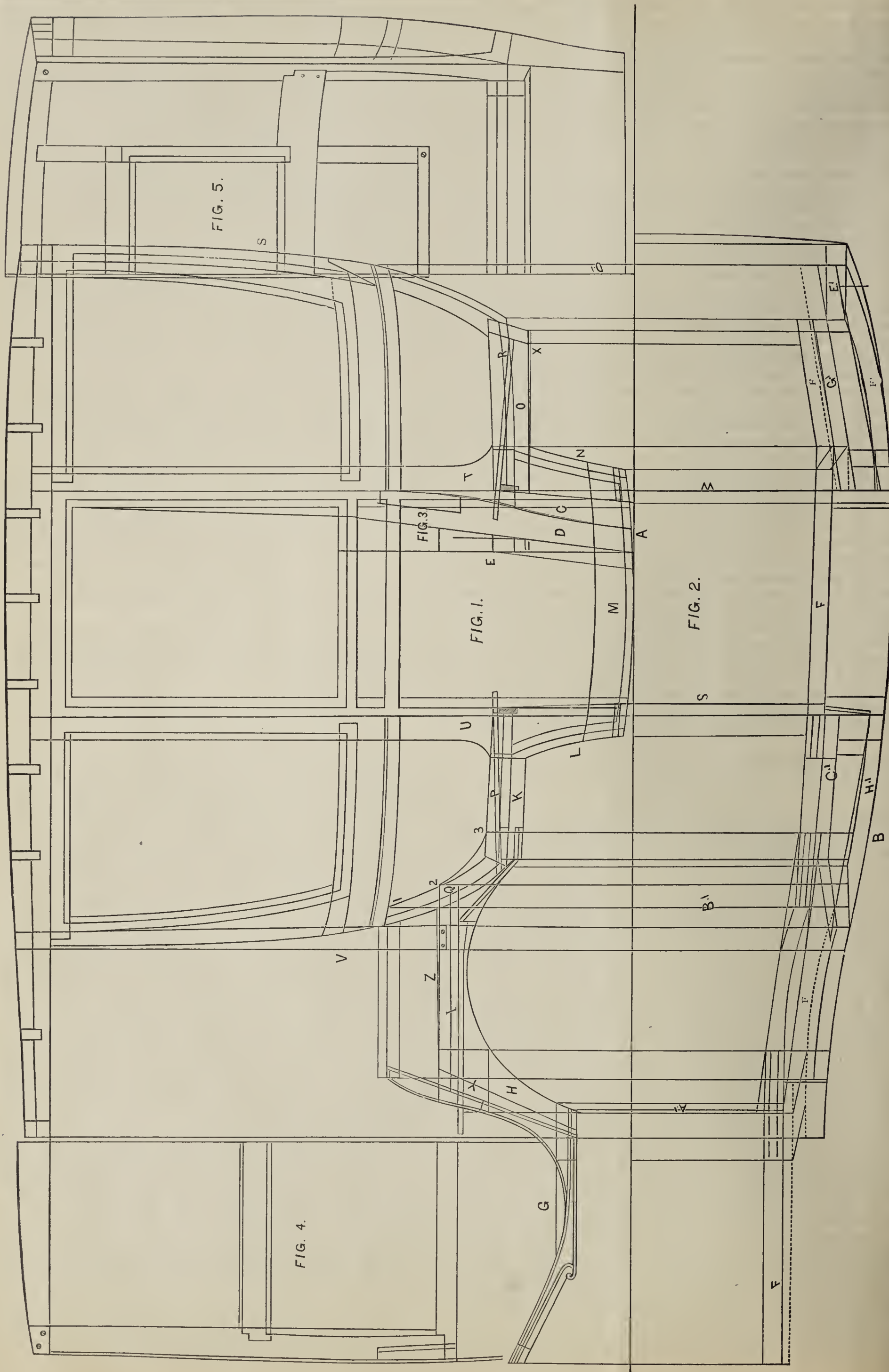
The side-boards are 6 in. deep, and fastened to the sills by $\frac{1}{2}$ in. bolts. The side-boards are ironed on top with $1\frac{1}{4}$ in. half-round iron, and inside and outside with 1 in. half-round iron. There are four sills on the body. The outside sills are $2\frac{3}{4}$ in. thick by 5 in. wide. The two center sills are $2\frac{3}{4} \times 4$ in. These sills are ironed with heavy band-iron, and supported in the center by several cross-bars. Two rungs are on each side, mortised through the sills. The standards in front, where the windlass is fastened, are made particularly strong, and are well secured by plates to the sills of the bottom frame. Truss-rods add further strength to the gearing. The front and back bars of the top gear are even with the outside of the fifth-wheel. No cross-springs are used for this job. The back end of the spring works in a slot.

Dimensions.—Width of body, inside, 5 ft. 2 in. Height of wheels: front, 3 ft., and rear, 4 ft., without the tire. Depth of felloes, $2\frac{3}{4}$ in. Size of spokes, 3 in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{1}{2}$ in. Hubs, 10 in. diameter. Front bands, $7\frac{3}{4}$ in.; and back bands, $8\frac{1}{2}$ in. diameter. The front bands are even with the outside of the hubs. Length of hubs, 12 in. Tire, $4 \times \frac{3}{4}$ in.

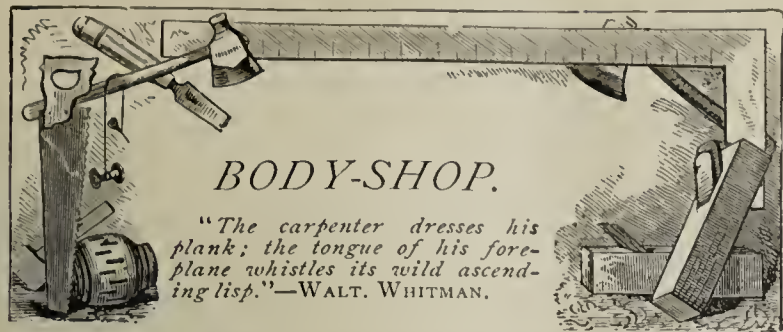
The front springs are 44 in. long, from out to out, with 6 in. set inside. Width of steel, 3 in. Number of plates, fifteen, namely: the first seven No. 2, and the rest No. 3 steel. The rear springs are 44 in. long, from out to out, with 8 in. set inside. Width of steel, 3 in. Number of plates, eighteen, namely: the first ten No. 2, and the others No. 3 steel. Axles: front, $2\frac{1}{2}$ in., and rear, $2\frac{3}{4}$ in., octagon center. Track, 4 ft. 8 in., from out to out.

Painting.—Body, dark green between the moldings of the side-boards; and moldings, black. Running-gear, English vermilion, with a broad stripe and two stout lines of black.

"TOTAL DEPRAVITY" was the subject of the sermon of the Rev. Mr. McDonald, of San Rafael, Cal. While he was preaching it, a thief stole the lap-robe from his buggy standing in the horse-shed.



WORKING DRAFT OF SIX-PASSENGER BERLIN ROCKAWAY.—SCALE, ONE INCH TO THE FOOT.



WORKING DRAFT OF SIX-PASSENGER BERLIN ROCKAWAY.

(See Full-page Illustration accompanying.)

BEFORE building any carriage body, the first requisite is to prepare a careful side elevation, representing its general style and outlines; and next, to determine the width of the body, and to lay out the cant. Of course the proper side swell adds materially to the beauty of such a body as is here represented; but the principal object we have in view in introducing this working draft is to explain how, while giving the body considerable swell, we may avoid using heavy timber.

Our drawing is divided into five different parts, namely: Fig. 1, the side elevation; Fig. 2, the cant; Fig. 3, the standing-pillar; Fig. 4, the half-front view; and Fig. 5, the half-back view. Careful study of these different views is essential to a full understanding of our description which follows.

* * * TIMBER TO BE USED.

The timber used for the principal pieces, such as rockers, pillars, etc., must be close-grained, tough-body ash; and our first duty is to properly mark out the different pieces on the plank. For instance, the rockers must be so marked that the bottom face is toward the sap side, and the corner-pillars so that the inside shall face the sap side of the plank, which holds good also for the door pillars. The standing-pillars, on the contrary, should have the outside face the sap side of the plank.

THICKNESS OF THE BODY PIECES.

All the rockers, with the exception of rockers G, H and I, are $1\frac{5}{8}$ in. thick; while 2 in. ash will be required for rocker G, $1\frac{7}{8}$ in. for H, and $2\frac{1}{2}$ in. for I. For the upper section of the hind corner-pillar, indicated by S, $2\frac{1}{2}$ in. is required; and for the lower section R, $3\frac{1}{2}$ in. The front bottomside P, is $3\frac{1}{2}$ in., and the short corner-pillar Q, in front, is made of $2\frac{1}{2}$ in. ash. The rear bottomside O is of 3 in. ash. For the standing-pillars, U and T, use 4 in. ash. The front door-pillars are $1\frac{3}{4}$ in., and hind, $1\frac{5}{8}$ in. thick. For the front corner-pillar V, 3 in. ash is necessary. All the cross-bars, with the exception of the hind one, are made of 1 in. ash, while the latter is $1\frac{1}{4}$ in. The seat-rails are $1\frac{3}{8} \times 2$ in. The middle rail of the back is $1\frac{5}{8}$ in. The back, having 1 in. swell, will leave the rail at the shoulder nearly $\frac{3}{4}$ in. thick.

WIDTH OF THE BODY.

The width of a body at the center, front and back, is generally measured from out to out; but it sometimes occurs that carriages are ordered requiring the seat to be of a certain specified width between the standing-pillars, and to stipulate the width of the body from out to out would, in such cases, prove a very uncertain undertaking. We will therefore first determine the turn-under and size of the standing-pillar, and then proceed as follows:

The width of the body between the standing-pillars is 3 ft. 6 in. on our drawing, and it should not be less than this. Measure the distance from line D to the front face of standing-pillar T, at the height of the seat, which is $4\frac{1}{2}$ in., and add this to the width of the seat. This will make the body in the center 51 in. The width of 50 in., at the hind standing-pillar, should be sufficient for a body of this kind. This would make the seatroom, providing we retain the same turn-under, 3 ft. 5 in.; but the specification calls for 3 ft. 6 in., and we can only obtain this width of 3 ft. 6 in. between the pillars, with a width of 50 in. at the center of the body, by lessening the turn-under, which is not to be recommended, for a turn-under less than on this drawing, which is $3\frac{1}{2}$ in., will not make a very creditable-looking job. We can only repeat, that the determination of the width of a body from outside to outside may answer when the width of the seat is of no particular object; but will not answer where the width of the seat between the pillars is specified, as is generally the case on ordered work.

The width of the body at the hinge pillar is 51 in.; ditto at lock pillar, $49\frac{1}{2}$ in.; ditto at the back, 42 in.; ditto at the front, 42 in.; and ditto at the dash, 32 in. Turn-under, $3\frac{1}{2}$ in.

DRESSING THE DIFFERENT PIECES.

All the rockers, with the exception of rocker G, are contracted and inclined. The bottomside R is contracted, but not inclined. When

marking out the pieces which are contracted and inclined, care must be exercised to mark the same heavy enough to permit working on the bevel. To save time when dressing, the pattern should be placed on both sides wherever possible. The process how to proceed has been explained in connection with the working draft of the "Round-bottom Landau," in our last volume, but we will give a brief repetition of the same, and select for this purpose the door rocker M.

First, transfer the inside face marks of the rocker L and N to the pattern. Take the bevel of lines A and D, and dress the ends of the rocker M, either top or bottom, by this bevel, to the shoulder marks of the rocker L and N. Then take the bevel of lines F and W, and cross a line over at the shoulders of either L or N. Lay the pattern on the other side, making the mark on the pattern and rocker correspond, and then mark off. The rocker is dressed by these lines. This will answer for all other pieces.

To facilitate the work in building such a body, all shoulder-marks should be transferred from the draft to the pattern, which in turn are transferred from the pattern to the piece when done dressing. This avoids unnecessary handling.

Still another simple rule will be found of advantage in facilitating the work (at least we always found it so), which is: to dress all pieces belonging to the body, and then prick off every piece where necessary, and get the length of all cross-bars. After this is done, then begin to frame. The system, or non-system, practiced by many body-makers, who are accustomed to dress some of the pieces,—for instance, the rockers, and frame these together, and then dress again and frame, is not to be recommended. The excuse often made, that rockers must be put together, as there are occasional delays in the smith-shop, will not hold good on a body of this kind, for while the rockers are in the smith-shop for making the rocker-plates, then the back, front and doors of the body can be made meanwhile, and the front and back can be cleaned off and finished, so that when the rockers and plates are returned from the smith-shop, they are ready to go on the body.

When framing a body of this class, where the different parts are inclined and contracted, all these pieces, or most of them, will change their original positions, and it is very important to find out the exact amount of such changes. The rockers L and N can be laid off and framed by the draft. The contraction of rocker M is so insignificant, that it will not materially affect the position of the others. It is different, however, with K and O, as those rockers are contracted considerably. To show how to determine the exact amount of such changes produced by the inclination and contraction, we will take for example the rocker O.

Find out the amount of contraction of the rocker O, from the front face of the standing-pillar to the back cross-bar, Fig. 2, and place the amount on line E, from A. The distance between lines E and D, at this new point, is placed below the bottom line of rocker O. Draw line X from the front face of the rocker O to the extreme end. Set the bevel by the front face of rocker N and the line X, and frame these rockers by the line X. Or, if preferred, place the inside of the rockers N and O on the draft, taking the front face of rocker N as the guide line, and have the back end of rocker O touch the line X at the extreme back end. The bevel obtained by the front face of rocker N and line X will also be the proper bevel for the shoulders of rocker N and O.

The method of framing rockers K and L, is similar to that of N and O. It is different, however, with rockers H and Z. In the case of the last-named, strike line Y on rocker H, at any desired bevel. Then find the amount of contraction between lines A' and B', and place the amount thus obtained on line E, Fig. 3, and proceed in the same manner as explained in connection with rockers N and O. Place the space obtained between lines E and D on the top of rocker I, at the intersection of line B' with the top face of rocker I. Then draw a line from the front face of rocker H to this new point, at the intersection of line B' with the top face of rocker I, which will produce line Z. Set the bevel by lines Y and Z, and mark the shoulders for the framing of rockers H and I. When fitting, instead of trying the two last-named rockers on the draft, which is a very uncertain measure, we advise placing one arm of the bevel on line Y, and fitting the rocker by the horizontal part of the bevel.

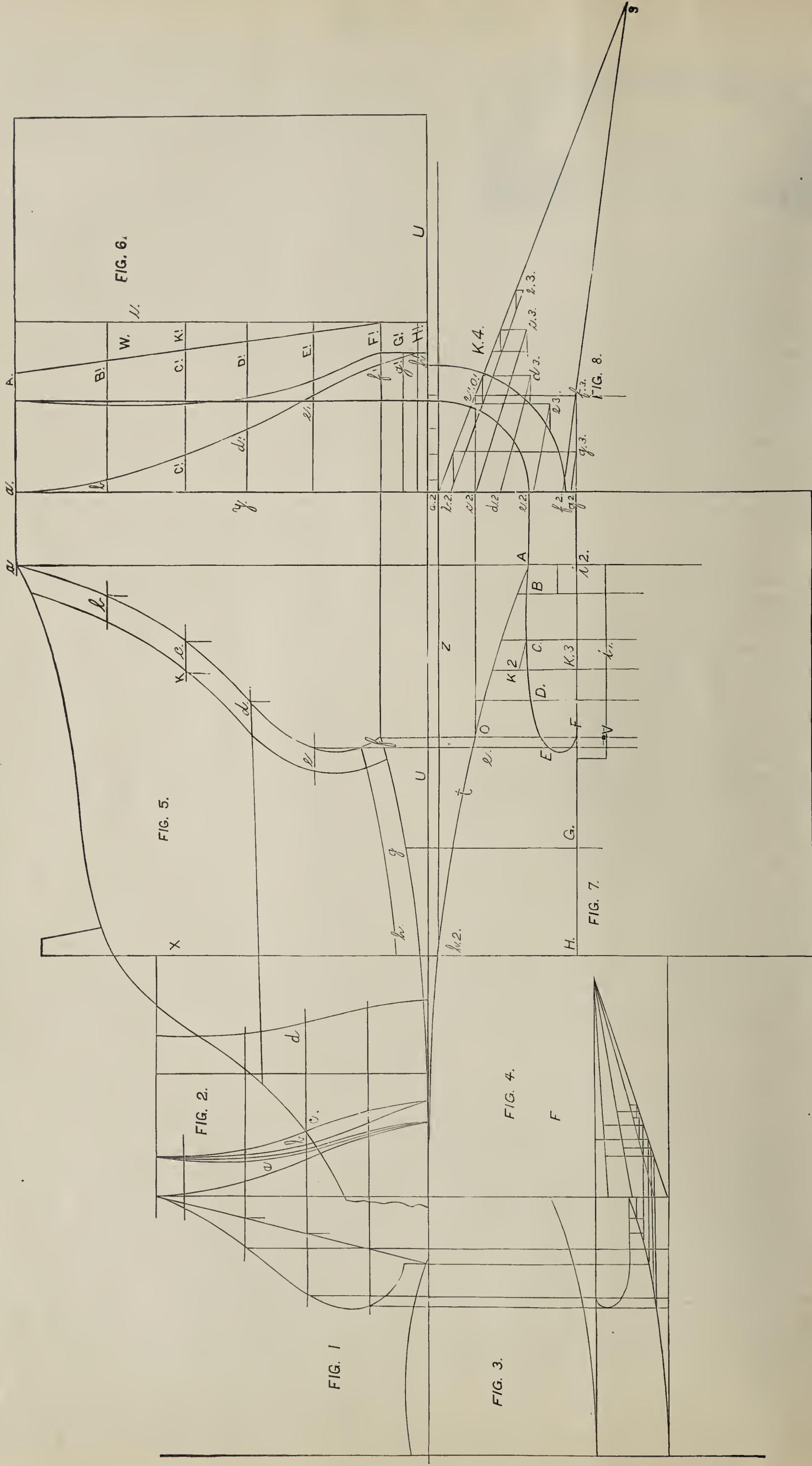
Rocker G is not contracted, but is framed vertical to rocker H.

The tenon on rocker H is gauged from the outside, and the mortise on G is pricked off. To find the difference of the mortise on the top and bottom of rocker G, carry the height of the rocker G over the lines E and D. The difference between the lines E and D will be the amount the mortise on the bottom face requires to be removed from the outside.

After framing, the edges of rocker G which project outside at the bottom and inside at the top face, are then dressed even, so that they have, when finished, the same thickness as rocker H.

Rocker I, when framed, is swept after the line of the top-rail at that place. See dotted line on Fig. 2.

The mortise on rocker K, where it connects with rocker I, is gauged off on top and bottom; but not so with the tenon of rocker I, which must be pricked off, and is accomplished by taking the distance between



THE PROPORTIONAL TRIANGLE APPLIED TO CORNER-PILLARS.
(See description on opposite page.)

line F and the tenon, as shown on Fig. 2. Draw a line from the extreme top and bottom ends at the back of the rocker I, to the cant. Then take the distance between line F and the line representing the tenon line, and place this space on the top and bottom at the extreme end of rocker I. The front ends of rockers I and H are treated in a similar manner. The mortise is on H, and the tenon on I. The former is gauged off, while the latter is pricked off in the manner described for the back end of rocker I. The front corner-pillar V is framed to rocker I, either by mortising or lapping, the former method being preferable.

The short front corner-pillar Q is glued against the front corner-pillar V and rocker I; and, for better security at the top end, the insertion of a strong screw is necessary.

Bottomsides P and R are framed to the standing-pillars U and T. The molding extends to the door-pillar, and requires a lap on the outside of the bottomside. A short tenon is in the middle.

The hind bottomside is made of bent wood, and is not inclined, but only contracted, the rocker O being shaved off from the outside, square with the top face to the depth of the bottomside R. By following the contracted line G', the bottomside will have a thickness, at line D', of $2\frac{3}{4}$ in.; but as the thickness required for the back corner-pillar is only $1\frac{3}{4}$ in., the inside of bottomside R is lightened from the top of the rocker O. The distance between the two lines E' and G', indicates the amount to be taken off.

By comparing the turn-under at the height of the bottom of bottomside R, with the distance between lines B and F', at the cant, it will be found that we have resorted to taking the cheat line. If we had deducted the turn-under from the line B, the back corner-pillar would have been considerably wider at the bottom, and would not give as good an appearance as is obtained by the application of the cheat line.

The pricking off of the corner-pillars and bottomsides is done the same way as was described for the different parts belonging to a "Round-bottom Landau" in Vol. XXV.

Line F is the outside line of the different rockers at the ground line A. The lengths of the different cross-bars are easily ascertained by carrying the height where they are located to the lines D and E at the standing-pillar, Fig. 3. The space between the two lines last-named is placed on line F, toward line B. The distance between this point obtained, and the ground line A, is half the width of the cross-bar. This is a simple and effective way, and avoids introducing too many lines on the draft. The same process is followed when ascertaining the width of the bottomside P and R, at the bottom face, as lines C' and G' will show.

To ascertain the width of the bottomside R at the top face, it is only necessary to find the difference between line C and front face of standing-pillar T, at the thickness of the bottomsides. This difference will be added to line F', outwardly, or toward line B. The inside remains the same, as the bottomside is vertical.

On the front bottomside P it is different, as the rocker is inclined; and to obtain the width of bottomside P at the top face and on the inside, we have to strike lines 1, 2, 3, 4 to the cant, carry the height of these lines from line A to the intersection with the inside of bottomside P, to the standing-pillar, Fig. 3. The space between the lines D and E is added to line C' outwardly. The same is done with the space between line C and the standing-pillar T, only that the latter space is placed on line H'. The distance between these two points at the different places is the thickness of the bottomside P at the top and inside face.

The front and back-quarter glasses are stationary. On many Six-passenger Rockaways movable glassframes are introduced, and held in place by moldings on the inside. The moldings are rounded at the inside corners, covered with cloth, and fastened to the stationary frame by round-headed screws. The heads are either silver-plated or black. The use of movable glassframes at the quarters, although requiring heavier timber for the stationary frames and somewhat more labor, is a great improvement, as they give the carriage a finer appearance. When repainting such a vehicle, the glassframes may easily be removed, thus preventing the glasses from breaking.

To build a Six-passenger Rockaway properly, especially when the rockers are inclined and contracted, requires a skillful body-maker, but the method of constructing such a body as is described in connection with this draft, is a simple one, and will be readily understood after a little study. The beneficial results are that a considerable amount of swell may be given to such a body while still using light timber.

The system of inclining and contracting the different pieces entering into the construction of bodies, is now adopted in all carriage factories of note; but while visiting in a Southern city, we were recently surprised to find an otherwise excellent body-maker still adhering to the square rule. The body which he was building was a Six-passenger Rockaway. Although not having a great amount of side-swell, the amount of timber used was certainly excessive. When questioned as to why he did not incline and contract the rockers, our old friend replied that he had never given the subject a thought. We never knew this body-maker to read any of the trade journals, and he confessed that he did not find them of

any use to him. His persistence in the old rut was sufficient proof that he might have found them very useful if he had taken the trouble to investigate their contents.

ALBERT KEHRL.

THE PROPORTIONAL TRIANGLE APPLIED TO CORNER-PILLARS.

(See Full-page Illustration accompanying.)

EDITOR OF THE HUB—DEAR SIR: In former numbers of *The Hub* you ask correspondents to give suggestions and to point out the live questions of the present day. I beg herewith to comply with this request.

In your April number you gave a working drawing of an Extension-top Phaeton, and in your explanation of the same you say: "To lay off the corner-pillars properly, we must proportion the side-sweep with the turn-under by means of the proportional triangle. The lines are given on the cant."

I have studied this triangle, its principle and construction, but can in no way make out what it is. In the same paragraph you refer the reader to the working drawing of a Spider Phaeton in your May number. In this May number the illustration at first sight appears all right; but what rules you employ to proportion the side-sweep with the turn-under you do not state. I only see the proportional triangle, which cannot by any means give the necessary point to lay off the corner-pillars. The illustration itself proves that, by the means you employ to lay out the corner-pillars, it can just as well be pricked from the side-sweep and turn-under line without the help of the triangle.

What then is the triangle good for? Or for what purpose do we make the triangle?

The question would properly be, to proportion the side-sweep with the turn-under line—that is, to cheat or to draw in the pillar in proportion to the above, for giving the back-pillar a pleasing, correct sweep, which, by your illustration, is not by far what is required in practice.

I have made this question one of my studies, because it is very important to body-makers to lay out these pillars correctly, to save annoyance and time. Will you, therefore, please prove in one of your next numbers that you did proportion the side-sweep with the turn-under in the same illustration from being different if it were pricked off from the side-sweep and turn-under line. C. HGD.

PHILADELPHIA, June 15, 1884.

* * *

ANSWER.

To answer the above questions of our correspondent more fully and understandingly, we herewith introduce a drawing of that part of the draft which the proportional triangle mainly concerns.

The assertion of our correspondent that the illustration in our May number proves that, "by the means employed, the corner-pillar can just as well be pricked off from the side-sweep and turn-under line," is premature, as is shown in Fig. 2, where line *a* is the line obtained by the proportional triangle; and dotted line *b* is the line pricked off from the side-sweep and turn-under line. To work by the latter method would make the body too narrow at the bottom, as we stated in the May number, and therefore, the point obtained by deducting the turn-under from the side-sweep has to be displaced, or in other words, cheated off. This amount to be cheated off is not limited; it may be more or less, as it is on the drawing. The result will remain the same, although we would not advise, when cheating off, to do it to such an extent that the body will be wider at the back than in the middle. The use we make of the proportional triangle is simply to proportion the side-sweep with the turn-under, which has been done in connection with the Spider Phaeton in our May number.

Our correspondent further says: "The question would properly be, to proportion the side-sweep with the turn-under line,—that is, to cheat or to draw in the pillar in proportion to the above, for giving the back-pillar a pleasing, correct sweep, which, by your illustration, is not by far what it requires in practice." We are sorry to say that we do not understand our correspondent quite perfectly. The angle is certainly there for the purpose of proportioning the side-sweep with the turn-under line, by means of cheating, as on the drawing. The corner-pillar is not drawn in. We are speaking of the bottom end of the pillar, although such is not stated by our friend. He merely says "to cheat or draw in the back corner-pillar to obtain a pleasing, correct sweep." The first thing is to cheat, and where? Does our correspondent mean to flatten the side-sweep? Does he expect to obtain, by such a method, the result which he claims ought to follow? We think not. Furthermore, he seems to ignore the fact that the sweep on Fig. 4, May number, will look entirely different when worked out on a body, which is produced by the side-swell of the body, in connection with the turn-under line. If we had employed a straight corner-pillar, as shown on Fig. 1, line A, on the opposite page of this number, the result would be as per line *c*, Fig. 2, without employing the cheat line, and as line *d*, when using the proportional triangle.

We have used on Figs. 1, 2 and 3, the same lines employed in our working draft, May number, but have turned the angle, and have not used the same line of inclination (to prove that such is immaterial); and our correspondent will find, after reading the explanation given in con-

nection with Figs. 5, 6, 7 and 8, that the result is the same as on Fig. 4, May number.

We would add here, that the object of the proportional triangle is to establish the new sweep resulting from the displacing of one point. To avoid a crowding of lines, the drawings represented by Figs. 5, 6, 7 and 8, are made to the scale of $1\frac{1}{2}$ inch to the foot, and divided into four different parts, namely: Fig. 5, the side-elevation; Fig. 6, the turn-under and the back corner-pillar; Fig. 7, the cant; and Fig. 8, the proportional triangle.

The turn-under line is given in a, b, c, d, e, f, g, h , on Fig. 6. Its plane is perpendicular to the ground line U at point h , Fig. 5. Consequently, its vertical trace line X h , Fig. 5, and its horizontal trace line h H, Fig. 7, are both perpendicular to the ground line U at point h ; and the surface of the body is regular only in the plane of these two lines. The determination of any point of the surface which is not in the plane of lines X, h and H, Figs. 5 and 7, with the exception of point a on top of the corner-pillar, must be referred to the angle on Fig. 8.

To establish the angle and proportion the surface, let us take point f , Fig. 5. The projection of this without cheat, on Fig. 7, is in V. The distance from the side-sweep line t to the point V, is equal to the distance from f , to line $a y$, Fig. 6. Let us now displace this projection from V to F, Fig. 7, and find the projections of other points.

To accomplish this, draw line Z from h 2, where the side-sweep intersects the plane of the turn-under, parallel with the ground line U. From any point of line Z, and at any angle, draw line a 2, S, Fig. 8. From point O, on Fig. 7, where the line f , Fig. 5, intersects with the side-sweep, draw a line parallel with Z to O' on line a 2, S. Draw a perpendicular line O' f 3. From point F, Fig. 7, draw a line parallel with Z till it intersects the perpendicular line O' f 3, then take the turn-under on f , Fig. 6, and place it on the continuation of line $a y$ from point a 2 to point f 2. A line is then drawn from f 2, through f 3, until it intersects with line a 2 and S at S. The angle a 2, S, and f 2 thus established, will determine the position at any point in the following manner.

Take any point of the surface; e , for instance, on Fig. 5. Take the amount of turn-under from e to line $a y$, Fig. 6, and carry this amount to a 2, e 2, Fig. 8. From e 2 draw a line to point S. From e , Fig. 5, draw a vertical line to the side-sweep line t , Fig. 7. From the intersection of this line with line t , draw a horizontal line parallel with line Z, until it intersects with line a 2, S, on Fig. 8, point e . From e , draw a vertical line until it intersects with line e 2, on e 3. From this point draw a line parallel with Z, until it intersects the vertical line e , Fig. 7. This will make point E, which will be the correct position of one point for the corner-pillar.

As many points on the surface as desired can be obtained by repeating the rule which determined point E. A, B, C, D, E, F, are the points for the outside line of the corner-pillar. F, G, H, represent the outside of the bottomside. These points are represented on Fig. 6, marked with the same capital letters, each letter having an apostrophe.

Line W, Fig. 6, represents the inside line of the corner-pillar, and i is the perpendicular line. An easy way to establish line W on the ground plane is as follows: Take the thickness of the hind corner-pillars at the extreme bottom end, which is at F, Fig. 6, and place it at F, Fig. 7, and strike line i , from point F. Every point for the inside of the corner-pillar can be designated by taking the spaces between lines W and i at A' B' C' D' E' F', at Fig. 6, and placing the same at Fig. 7, at the corresponding vertical lines designated by the same letters. For illustration, we have drawn line i 2, which is equal to A' i on Fig. 6.

We will now briefly illustrate how to find the width of the corner-pillar at the inside or front face. The process is the same as that given when we described how to find the different points on the back face of the corner-pillar. We will take line c , on Fig. 5, draw a line across the pillar, and, on the intersection of this line with the front face of the pillar, make point K. Draw a vertical line from this point to the side-sweep line t , on Fig. 7; from the intersection with t , draw a line parallel with line Z to the intersection with line a 2, S, Fig. 8, which is designated as point K 4. Draw a line from this point to line c 2, c 3, S, on Fig. 8; take the distance from line Z to point c 3 on K 4, and transfer the same to line K 2 from Z, Fig. 7. This is the outside point for the front face of the corner-pillar.

To establish the width of the pillar, is now an easy matter. Line i , Fig. 7, as was stated before, is equal to line i , Fig. 6. Take the distance on line C', between lines W and i , Fig. 6, and place the amount on line K 2, from i , Fig. 7, which is here k 3. The space between point K 3 and the point previously obtained on line K 2, is the width of the pillar at that place. All other points are obtained in the same manner.

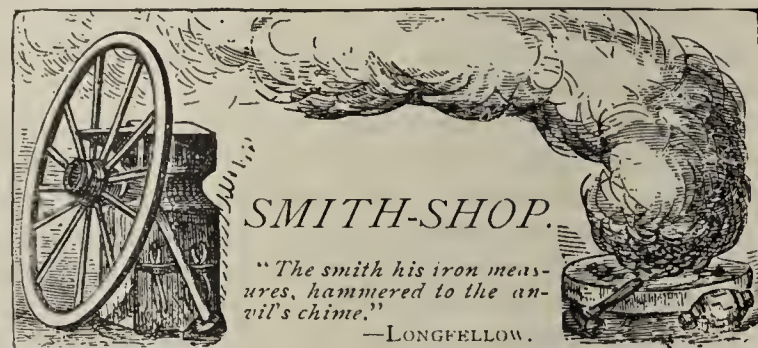
In concluding, we would state that the only important point in placing the proportional triangle on Fig. 8, is that the line a 2, S, which can be drawn at any desired angle, must be located in such position that any point taken on the side-sweep and carried toward line a 2, S, parallel with Z, shall intersect it. Otherwise, the position is not important. The angle may be established where it is on this drawing, or in front, or in

the middle of the body, or it can be made longer or shorter. The summit S can be turned backward or forward. Different positions and sizes will not alter the principle in the least.

We desire also to state that this valuable rule was originated by Mr. Albert Dupont, the eminent carriage draftsman, of Paris, whom we consider exceptionally high authority on matters pertaining to carriage geometry, and this rule is now employed by the best body-makers in Paris.

We hope, with this further explanation, that our correspondent and others will derive a better understanding of the principles and applications of the proportional triangle.

ALBERT KEHRL.



SECOND-PRIZE DESIGN FOR IRONING A PHYSICIANS' PHAETON.

MESSRS. GRIBBON, KONRAD AND POLYA, *Committee on Award of The Hub's Prizes*.—I am positive that you are well able to perform your duties, and for that reason I take special pleasure in sending you a working drawing of a Physicians' Phaeton. I will now proceed with the specifications.

In ironing a carriage like this, I commence by banding the hubs. Take for this job $\frac{3}{4} \times \frac{1}{8}$ in. band iron for the back of the hubs. Then set the tires, which are $1 \times \frac{3}{8}$ in., steel. Then I swedge the axles, which are 1 in. fantail, and fit them to a pattern; when this is done I weld them together. Next I make all the clip-bars, from $\frac{5}{8} \times \frac{3}{8}$ in. Norway iron, to take the clips, shaft-jacks, king-bolt and fifth-wheel. Then I make the king-bolt, draw the shaft-jacks, and swedge the bolt part round to $\frac{5}{8}$ in. Next I proceed to iron the shafts. For this I generally take $1\frac{1}{4} \times \frac{3}{8}$ in. flat iron, Burden's best, and swedge it down to a nice edge on both sides. Then I make the whiffletree bolt, which requires $\frac{3}{8} \times \frac{1}{2}$ in. Norway iron. The bolt part is made $\frac{1}{8}$ in. full.

Then I set the axles. The track is 4 ft. 8 in. front and back, from out to out, and the wheels are gathered a scant $\frac{1}{8}$ in. Next I take $1 \times \frac{3}{4}$ in. Norway iron, and make the fifth-wheels, which are $\frac{3}{4}$ in. wide. The top wheel is half round, scant, with lips on each side at the head-block. These lips are made very thin. A projection of $\frac{3}{4}$ in. is in the center of the fifth-wheel at the front edge, forming a clip-bar, and is shouldered down to $\frac{1}{8}$ in. thick. It also projects $\frac{1}{2}$ in. on each side of the perch, for the passage of the perch-clip, to combine the fifth-wheel and stay running from the axle to the bottom fifth-wheel. (I leave a flat bearing at center of bottom fifth-wheel, 8 in. long, to bear on the safety hook made solid on the bottom stay or guard.) Then I make the T-plate for the head-block, using $1\frac{1}{4} \times \frac{3}{8}$ in. Norway Iron. This plate is made full at the corners, and it forms the clip-bar front. Make it strong, on account of the holes drilled through for the spring-clips. I then swedge the perch-plate clear through between the bars. The clip-bars are made solid on the perch-plate, and the stays also are made solid with the perch-plate. It will be noticed that the inside branch stay is fastened to a lug that is made solid with the perch-plate, and the stay end is fitted to that, and takes a $\frac{1}{4}$ in. bolt. This will prevent the stay from wearing the wood, and it avoids putting any holes through the perch.

I will next call attention to the spring-clip, which is made solid with the perch-clip that goes through the fifth-wheel. The back one is made just the same as the front one, except that the bolt part on the inside is set off about $\frac{1}{8}$ in., so as to drill the hole back from the edge of the bottom plate. There is a plate on top of the perch, $\frac{3}{4} \times \frac{5}{8}$ in., half oval, and this plate is made flat at each end and about 1 in. long, so as to take the shoulder of the spring-clips; and it is let into the head-block and back bed about $\frac{3}{8}$ in.

The perch stay is made with $\frac{5}{8} \times \frac{3}{8}$ in. oval, Burden's best. The step pad is made with $2\frac{1}{4} \times \frac{1}{2}$ in. Norway iron, and swedged out to $4\frac{1}{2} \times 4$ in., the size of the pad. The body-loops are made of $1 \times \frac{3}{4}$ in. iron, Burden's best. Use at the loop-heads $\frac{5}{8}$ in. cheese-head bolts and the same in the center of the spring-bars. The dash is $15\frac{1}{2}$ in. high. For this use $\frac{5}{8} \times \frac{3}{8}$ in. oval iron, Burden's best; and for the toe-rail use $\frac{5}{8} \times \frac{3}{8}$ in. oval. For the side bearing, $\frac{3}{8}$ in. round iron is used to take a $\frac{1}{8}$ in. bolt. A loop is worked at one end. All the rest of the bolts on the body are $\frac{1}{4}$ in. The shaft bolts are $\frac{1}{4}$ in., and the tire bolts $\frac{3}{8}$ in. The back props are made of $\frac{5}{8}$ in. square iron, Burden's best, and shouldered off to $\frac{3}{8}$ in. for the joint-eye, and $\frac{1}{8}$ in. at the end for

prop-nut. For the front prop that takes the slat-iron swedge, same as the back props. Use $\frac{5}{8} \times \frac{1}{2}$ in. knuckles for the joints, pieced out with $\frac{5}{8} \times \frac{3}{8}$ in. oval, and curved a little to give a better appearance.

I have added a few sectional illustrations to give a clearer idea how the different parts are made, including the spring-clips, fifth-wheel, bottom axle-stay, front spring-clip, etc.

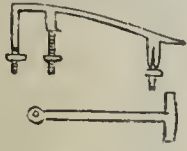


Fig. 1 shows the front spring-clip and bottom axle-stay.



Fig. 2 shows the hind spring-clip.

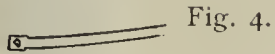


Fig. 4.



Fig. 3.

Fig. 3, back part of perch plate, and Fig. 4, end of inside stay.

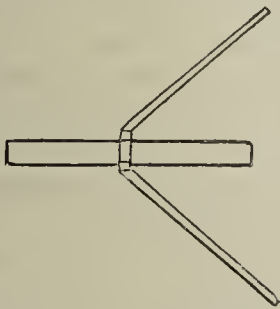


Fig. 5 shows a section of the perch and axle-stay.

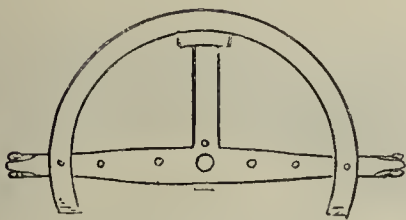


Fig. 6 shows the fifth-wheel.

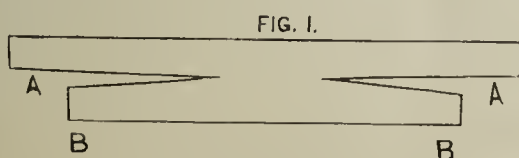
The following measurements are all given from out to out. The front springs are elliptic, 36 in. long, with 7 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first two No. 3, and the last two No. 4 steel. The hind spring is elliptic, 38 in. long, with $7\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first No. 2, the next No. 3, and the last two No. 4 steel. The holes for the top half of the springs are $3\frac{1}{2}$ in. apart; and at the bottom, the same front and back. The bottom half of the hind spring takes two square-head bolts. They are let into the back bed so as to keep the spring from moving, and the bolts pass through the spring-clip, and are then riveted on top and filed smooth. Axles, 1 in. Track, 4 ft. 8 in., from out to out.

LEANDER J. AUBRY,
New-Haven, Conn.

HOW TO MAKE SLOT FIFTH-WHEELS FOR BUGGIES.

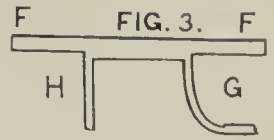
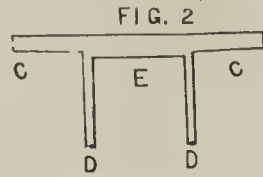
ONE of our subscribers writes from Southern Alabama, asking us to show him how to make a slot fifth-wheel, and the best iron to use. We quote a portion of his letter: "All that I have made thus far, have been done by drilling and filing the slot. I find this a tedious and rather expensive way, and am willing to be taught a better one, with your assistance."

The drilling and filing method is certainly tedious and costly, and, to say the least, rather primitive. By a series of outline sketches, we will now explain the modern method of making such slot fifth-wheels.



Let us presume that the fifth-wheel is to be one inch wide, and therefore take a piece of Norway iron, or its equal, $1 \times \frac{3}{4}$ in. wide, and split it as per A A, Fig. 1, cutting off as at B B, which forms the upper portion.

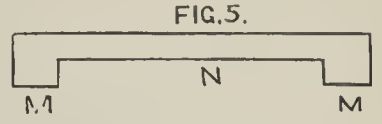
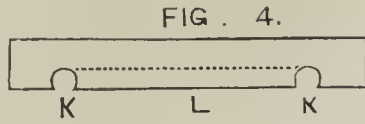
We next turn down D D, the clips, Fig. 2, and form the recess E, and swage the upper portion C C to the proper size.



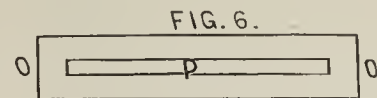
We then throw off one clip as at G, Fig. 3, and form the clip on H, and finish this to the proper size.

When the clip is formed at H, throw H off as G, straighten G, and form a clip the same as H, and then fit the clip to the bed.

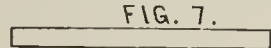
Next cut the thread, and straighten both. This finishes up so far as the clip portion goes.



Next comes the slot. To make this, proceed as follows: Take iron 1 in. $\times \frac{3}{8}$ in., and fuller in as at K K, Fig. 4, and cut out L as per dotted line, when we get as a result, Fig. 5, wherein M M are the two shoulders, and N the recess. We then place the two together, as in Fig. 6, wherein O O are the two shoulders. Then we weld. This process forms the slot P.



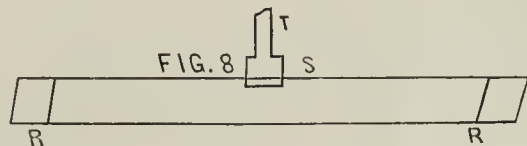
The next process is to get the required length, and weld in the slot; and after this, we fit in a loose piece of iron, as per Fig. 7.



Then heat the whole, and bend on a former, removing the loose piece as soon as it is cold.

The above method allows of the contraction of the inner circle and the elongation of the outer circle.

The upper section is the simplest to make. Proceed thus: Take $1 \times \frac{3}{8}$ in. iron, and at the center jump-weld on a piece, $\frac{1}{2} \times \frac{1}{4}$ in. Leave the full size, so as to fill the slot. Then form an end, as per T, Fig. 8, the proper size for taking a nut. Swage on one side the space between R R, the bearings for the head-block. See Fig. 8.



Then bend the same as the bottom one, on a former. Fit both together, and finish both off. Then compass them and try together to suit the gauge, so as to insure uniformity.

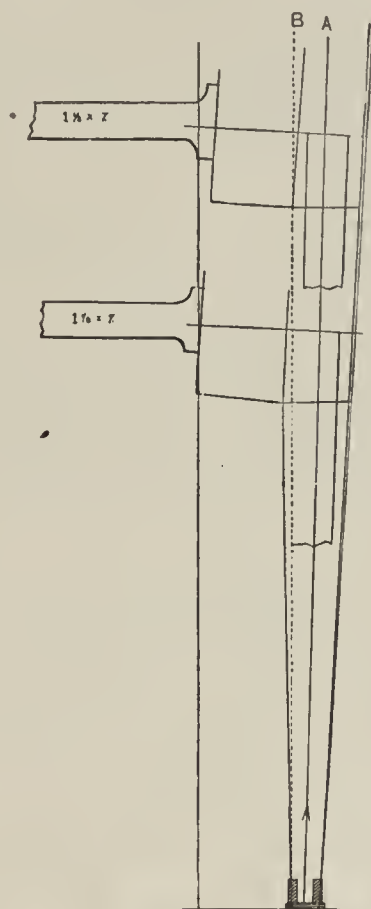
SHOULD BOTH AXLES BE THE SAME LENGTH?

EDITOR OF THE HUB—DEAR SIR: The question by Martin O'Connell, of Terre Haute, Ind., "Should Axles be of the same Length?" (May Hub, page 104) is of vital importance to the carriage trade. I see you have quoted an English opinion on the subject; but in my opinion this will not apply to the United States, because the table for the dish of the different heights of wheels would be too great to apply to any except exclusively heavy work, and in a climate like England where the damp atmosphere would naturally keep the tires tight for several years; whereas in a climate like that of the United States, which is very changeable, necessitating more frequent re-hooping of wheels, the plan would soon destroy the wheels altogether. I should deduct 50 per cent. from the tabled figures.

But the question is the length of axles; and while I shall not attempt anything of a theoretical character, I will endeavor to place myself on the side of practical utility, for, as our English essayist says, scientific theory must give way to practical utility.

I shall begin with a vehicle intended to carry four persons of an average weight of 150 lbs. each, or 600 lbs. in all. The front wheels are 36 in., and the back 48 in. high. I would take a hub $4\frac{1}{2} \times 7$ in.; axles, $1\frac{1}{8} \times 7$ in.; spokes, $1\frac{1}{4}$ in., tapered to 1 in.; drive them flush with front of front mortise, and give $\frac{3}{8}$ in. stagger, so that all the dish before tiring would be what the rim would give. The rim is $1\frac{1}{8}$ in. on tread. As near as possible I would give the wheels $\frac{3}{8}$ and $\frac{1}{2}$ inch dish front and back, and calculate for a track 5 ft. $1\frac{1}{2}$ or 2 in. I would make my front axle 4 ft. 6 in. full, and the back one 4 ft. $6\frac{1}{2}$ in. full. I would then set the front axle 5 ft. $1\frac{1}{2}$ in. scant, and the back one 5 ft. $1\frac{1}{4}$ in. full; and gather sufficiently to form an alignment covering face of rims from back to front. The nearer the approach to the same height the wheels may be, the less difference in length I would make the axles, but in no case would I make them the same length unless it was made for show in the wareroom only.

By setting axles as I have described, you get the back spoke of the back wheel plumb from the back of the spoke as per dotted line B in sketch, and you get front spoke of front wheel plumb on the back of the spoke as per dotted line B, also; then draw center line A and you have a very nearly plumb and square bearing on the bottom; this would give the front wheel $3\frac{1}{8}$ in. swing, while it would give the back wheels $4\frac{1}{4}$ in. swing, while the carriage is empty. Now load up with the proper load for its capacity, and you will discover how nearly the carrying capacity is equalized.



I have made it a practice for the last twelve or fifteen years to load every vehicle that I make calculation for. After I have loaded with an average of 100 lbs. more than its intended capacity, I always run it back and forth about twenty feet, for the purpose of noting any defect or deflection in the axles, and the foregoing is the result of many experiments in that direction.

I notice both in the English opinion and also in that of *The Hub*, that the swing and gather of axles have been entirely ignored, and I consider both are among the most essential points to be looked after. A great deal might be said on this most important subject. But I do not feel equal to the task it would entail. However, I do not feel loth to give my opinion, based upon an experience which so far has served me well.

I cannot agree with the English opinion that wheels, after repeated tiring, increase in dish. I do not find this to occur in all cases. Wheels that we make here are constructed upon a principle that, as the tire becomes loose from shrinkage of the wheel, the wheel straightens up to its original condition, and in almost all cases they do what we have intended they shall do, namely: they straighten up.

We have just hooped a set of wheels which have stood a physician's work for seven years past and have worn out five sets of tires, and are now receiving their sixth set, and of course new tires; and the wheels are about the same as regards dish as at the start.

What I have said upon this subject may not be scientific, but we are often compelled to sacrifice science and the best of theories for the want of ways and means to utilize them. In constructing carriages, we must consider a combination of beauty with durability absolutely essential. A carriage must not be a mere toy, built up principally upon geometrical lines. That the foregoing may not be scientific, but that it is practical, is the opinion of
Yours very respectfully,
R. H. LEE.

214 South 5th-st., PHILADELPHIA.

NEW KINGBOLT FOR BROUGHAMS.

LIVERPOOL, ENG., July 16, 1884.

EDITOR OF THE HUB—DEAR SIR: We inclose a rough sketch of our improved perch-bolt, or kingbolt, as you call it, for Broughams. We have used it for some time past, and find it the best we have tried.

There is no fear of its being noisy or getting loose in any way, as the spring washer above the nut always keeps it tight. The head is water-tight, and, being secured with two bolts, is as if solid with the bed-plate.

You are welcome to make whatever use of this you like. We have not patented it, so you can do what you think best with it. We have not seen anything of the sort in your magazine, so think it may be new to you.

The following sketch, Fig. 1, will suggest its characteristic features.

This kingbolt is adapted not only for broughams but also for any kind of platform work. It is made with flapped head, A, which is spliced into the top-bed plate and cleaned off level on top, and fixed with the two $\frac{5}{16}$ in. center bolts, B and C, one at each side of the kingbolt.

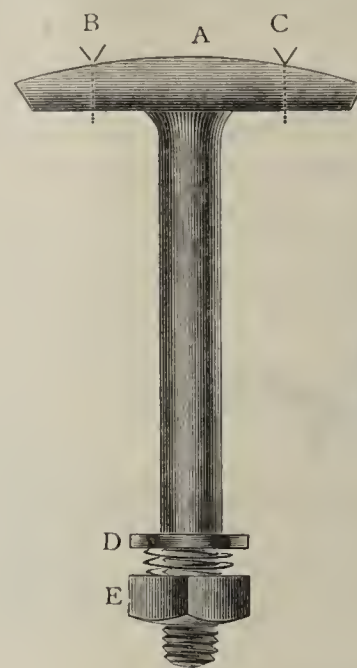


FIG. 1.

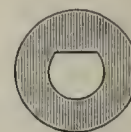


FIG. 2.

At E is shown the nut, just above which is the spiral-spring washer; and just above the latter is a gun-metal washer D, $\frac{3}{16}$ in. thick, the shape of which is more clearly shown in Fig. 2.

This washer of gun metal, Fig. 2, is fitted to the bottom end of the bolt, which is screwed as far down as necessary, after which a flat bearing is filed off the back part of the thread, to fit the gun-metal washer, so as to prevent its turning around when the carriage is locked. A spring washer (spiral) is then put on, after which there is a hexagon-shaped nut, which does not require any key or pin to keep it from coming off, as it is held perfectly tight by the spiral washer, which is made of spring steel and oil-tempered. This washer need not be fitted to the bolt, but can have a plain round hole, the same as the nut.

Yours respectfully,

SIMMONS & HOOPER.



WHAT IS PORTLAND AMBER?

TO THE EDITOR—DEAR SIR: In describing the painting of E. Chope & Sons' "Pair-horse Truck" in your July *Hub* (page 253), you say the body is painted with "Portland amber." What is this color? Is it one of Valentine's prepared colors?

T. S., of New-Haven, Conn.

ANSWER.—We have written Messrs. Chope & Sons to find out, and they reply as follows. They say: "The color 'Portland amber' is manufactured by John W. Masury & Son, of New-York City, and you can no doubt get a fuller and better description from them than we can write."

In response to an inquiry subsequently addressed to Messrs. John W. Masury & Co., Mr. Wolcott, of that firm, has kindly sent us a copy of their sample book of prepared coach colors, in which he has designated the shade referred to. It is a brown of the olive hue, and a color very popular at the present time, generally under the name of "olive brown."

HOW TO MAKE CANVAS ADHERE TO ROOF BOARDS.

BALTIMORE, MD., Aug. 4, 1884.

DEAR HUB: I should think you would get very tired answering questions, and sometimes very silly ones, as you may think mine is. But really, I would like to know what is the best process, and what is the best thing to use, to make canvas adhere properly to roof boards. I have had so much trouble in bubbles and cracks and slinking into nail holes in spite of putty, that I have grown disgusted, and I appeal to you. Please don't expose my ignorance by publishing my name.

INQUIRER.

ANSWER.—We think our correspondent will find the facts he seeks in our last number. See article, pages 332 and 333, entitled "Cracking of Roofs, and How to Prevent it." If not, he has only to specify what further particulars he requires, and we will take pleasure in endeavoring to obtain them.

PRESENT STYLES OF STRIPING.

ST. LOUIS, Aug. 4, 1884.

EDITOR OF HUB—DEAR SIR: Please inform our foreman, Mr. Herman, in regard to striping, as we desire to know the very latest styles of striping on such carriages as barouches, surreys, and buggies, of good new work; whether fine, broad, double or single lines, and the most desirable colors. Please answer immediately, and oblige

PETTON & KLUEGEL.

ANSWER.—The first two numbers of our present volume contained full particulars regarding this subject. See "Present Styles of Painting Light Work," April *Hub*, page 31; and "Present Styles of Painting Medium and Heavy Work," May *Hub*, page 106.

BOOKS ON CARRIAGE PAINTING WANTED.

SAGINAW CITY.

TO THE EDITOR: A young man, a painter by trade, would like to know if there is any book that will help him to understand his business. He has only got as far as house-painting yet, but wants to take in other branches. Some good, practical treatise on mixing colors and selecting for different uses would be desirable. He is anxious to do first-class work in all the grades, and wants to study anything that will further that purpose. If you know any treatise that would be likely to help, please give publisher and price in the columns of your paper.

MRS. S. B. W.

ANSWER.—We can recommend Chevreuil on "Color" (English edition); "The Painter, Gilder and Varnisher," published by Henry Carey Baird & Co., of Philadelphia; "The Complete Carriage and Wagon Painter," by Fritz Schriber (F. B. Gardner), published by M. T. Richardson, New-York; "Studies in Scrolling, Striping and Ornamental Painting," by F. B. Gardner, published by *The Hub*; and the various trade journals devoted to the carriage trade, notably the *Coach Painter* and our own periodical.

IS THERE A HIGH-GRADE VARNISH THAT WILL NOT BLOOM?

MONTROSE, PA., July 21, 1884.

EDITOR OF THE HUB—DEAR SIR: I have read with interest the article on varnish blooming, in your July issue (page 261), and desire to offer a few remarks on the subject.

My idea of a painter, is one that is constantly studying and experimenting for better results, and, acting on this standard, I have found and am now using a varnish that will not bloom or smoke-up, and at the same time works freely, sets slowly, and dries with splendid results. This varnish is manufactured by DeGolyer & Bro. I secured samples by answering their advertisement in *The Hub*, and am perfectly satisfied that it is entirely free from this defect. I would further say that the climate here is such as to give work the most severe test possible as regards blooming, and I have now two wagons finished, one with this varnish, which is clear and bright as crystal, and the other with one of our best American makes, which is as blue as indigo. It costs but little to experiment on this as in other matters, and it does not always pay either builder or painter to be too conservative. Let D., of South Amboy, try this, and I think he will not be troubled any more.

C. F. PETERS,

Carriage Painter.

NOTE.—We have had no experience with the varnish referred to, and therefore offer the above testimony on its merits. We have no reason to doubt the facts set forth, although we are convinced that all high-grade varnishes will bloom when subjected to the influence of damp atmosphere, as we have already explained at length. A really high-grade varnish that positively will not bloom, has "millions in it."

A CASE OF CRACKED ROUGHSTUFF.

WHITE HALL, VA.

EDITOR OF THE HUB—DEAR SIR: My painter recently filled a body for me, and since it has been cut down, the filler has begun to crack. I attribute this to putting on the filling too fast, and before the under-coats were dry.

It is for a fine carriage, and I wanted a fine job of painting. Please let me know what I can do to make a durable one out of it. Please let me know immediately.

Yours truly,

R. B. HENSELL.

ANSWER.—If the filler is badly cracked, there is certainly nothing left to do but to cut down through the cracks, and then begin over again from that point. Your explanation of the cause of the trouble is probably correct. In re-painting, it would be well to observe the following conditions. Make your roughstuff elastic. We are inclined to believe that your roughstuff in the first instance was too hard and quick, by reason of there being too much japan in it. Then, again, the coats may have been too heavy; and you perhaps did not allow sufficient time between coats for them to sufficiently harden. We imagine that when you come to face down the job, you will find that the cracks extend down to the wood, which will imply that one of the above adverse conditions was present.

Please let us hear from you again in regard to this, giving particulars as to the method of roughstuffing which you afterward adopted on the same job, and the results which you finally obtained.

L.

GRITTY ROTTEN-STONE AND PUMICE.

ROTTEN-STONE is sometimes harsh and gritty. The best way of trying it is to take a little between the teeth, when the least portion of grit may be detected. Careful workmen will always wash it before they use it. This is effected by stirring the fine powder in a considerable quantity of water, then allowing it to remain at rest for a few seconds, and pouring the water into a glazed earthen vessel. The powder which then precipitates will be very fine and smooth. By washing the remainder, the whole of the finer parts may be separated from the grit.—*The Painter*.

NOTE.—We invite attention to the above extract from our exchange, as well worthy of consideration. Much of the pulverized rotten-stone in the market nowadays, lacks uniformity in degree of fineness; and hence, even if the surface of a panel be rubbed with the greatest care, it will often present coarse scratches, which are exceedingly annoying to the painstaking workman. The simple method above suggested for removing gritty particles from the dust, should prove an effective remedy for this trouble. We know that some of our best painters use this same method for preparing their ground pumice-stone for the final rubbing before varnishing, and we recommend that it should always be done.

L.

HOW TO PREVENT MADDER LAKE FROM DARKENING.

TO THE EDITOR: Any man of ordinary faculties, by reading *The Hub*, cannot miss being a first-class painter. By practicing your hint to a Canadian on varnishing a body, I was greatly benefitted. [We presume our correspondent refers to the article entitled "Directions How to Varnish a Carriage or Sleigh," April *Hub*, page 31.]

Could you now tell me how to make a clean stripe with Dutch madder, and how to make it keep its color? I find that it gets dark after it stands for some time.

I remain, yours very respectfully,

J. B. McARTHUR.

PAISLEY, ONT.

ANSWER.—We are not quite sure what color our correspondent means by "Dutch madder." We will take it for granted that he refers to madder lake, as there are no other madders with which we are acquainted that are in common use in carriage paint-shops.

Madder lake is a transparent color, which must be used as a glaze over some other color, for instance, browns or greens of the olive tint, both of which make very handsome striping for heavy carriages. All such fine colors, when used as glazings, are very delicate, and should be used with great care. The fault of turning dark, which our correspondent refers to, is a common one, and usually arises from its being ground in inferior japans, which are dark and muddy and should never be used with any of the delicate shades. Madder should always be mixed in varnish, the lightest possible rubbing-varnish being preferred. Then thin to the required working consistency with turpentine, and apply as usual.

THINKS HE HAS FOUND A CURE FOR CRACKED WORK.

EDITOR OF THE HUB—DEAR SIR: I saw an inquiry in the March *Hub* about "Re-painting Over Cracks," in answer to which you say you wish you could confidently recommend some method as being an effective panacea for the difficulty; but you cannot.

Well, Mr. Editor, since you give it up, I will try to help R. J. Kendall out of his trouble.

First, I will give the craft my experience in covering old cracks in varnish.

I have experimented on this for about ten years, but failed in every attempt until three years ago, when I struck upon a preparation, or rather, a filler, which will cover the worst cracked body or gear in existence without removing any of the old paint, and the cracks will never appear again.

I dare say there is not one of my brother painters who will believe this, and three years ago I would not have done so; but fourteen months ago I painted a cabriolet, which was one of the worst cracked jobs I ever saw, and before writing this I took the pains to send a man to look at the job, and he tells me it is a perfect job, with not a crack to be seen, and the varnish still retains a good luster. This is but one out of a great many jobs which stand good to-day, and I never removed any of the old paint.

I could give you a good many more points on this, but I do not wish to make this an advertisement, nor do I want to make any money out of it. All I wish is to help the carriage-painter, and to aid the glorious old *Hub* in its good work. I shall be glad to correspond with any of your readers who may care to write to me on this subject.

I. F. WARD.

PERRY, N. Y.

NOTE.—We offer the above testimony on its merits. We know nothing about the merits of the filler itself, and we confess that we should be a prejudiced jurymen if we were called upon to investigate it critically, for, after long experience, we have little faith that the disease of cracked work can be permanently cured without the scalpel, in the form of a scraper or burning-iron.

L.

A HOUSE at Edgartown, Mass., bears the sign, "Washing and ironing and going out to work done here."—*Boston Transcript*.

THE LOOK OF STYLE ABOUT CITY-PAINTED VEHICLES.

THERE is a certain *style* about a city job that but few country workmen get to perfection, particularly the striping or ornamenting work. City work is neat and tasty, while nine-tenths of country work is gaudy or clumsily done, and when this is the case no varnisher in the world can redeem it by a mirror-like coating.

Trade journals are continually giving in their columns the latest city styles, the colors employed, and even the size and shape or position of stripes, so there is no excuse on that point when a few dollars will procure all the carriage journals published. There are carriage-builders who endeavor, by every way they know, to equal in appearance city work, but fail to reach the goal they seek. They visit the city and see how work is being done, then try to instruct their workmen. Would it not be better to allow your workman—the head painter I mean—to go around a little himself?

New-York City shops turn out good work, as a rule, because they employ a *head* to their paint-phop, and he is supreme ruler of the manipulation of the force, tools, paints and varnishes supplied him.

City shops are not easily persuaded by drummers to change around like a weather-cock in purchase of pigments, prepared paints, varnishes, etc. They get the best they can find and hang on to it until, by a side issue of experimenting, it is proven conclusively that a change will be for the better; and not till then, for their workmen have become acquainted with the peculiarities in the working of the material, and they not only do good work but more of it than with something new.—*Coach, Harness and Saddlery.*

* * *

NOTE.—We are inclined to believe that the “look of style about city-painted vehicles,” above alluded to, is mainly due to first-class intelligent workmanship, and the use of the best materials. The country carriage-builder of course does well to acquaint himself with what his city brothers are doing, and to communicate all the latest city ideas to his foreman painter; but it then devolves upon him to give his painter the facilities for putting such ideas in practice. He should supply him with a well-appointed paint-room and a boudoir of a varnish-room, for these are what the best city carriage painters have to work in; he should supply him with the best possible materials for painting and varnishing, for the city painter has these; he should allow him sufficient time to do his work properly, which is not always the case, you know; and he should pay him such good wages that his position shall be an object to him, and his entire attention shall be devoted to the question, “How shall I better my work?” instead of “How shall I better my position financially?”

We haven't so very much sympathy for the country carriage-builder who comes and leans on our office desk and complains that he is dissatisfied with his painter, and “wants now to get one who has worked at Brewster's, and knows his trade;” and lo! when we ask: “Well, how much are you willing to pay such a man?” answers: “Two dollars a day.” Why, the rubbers in a first-class city shop get that.

The best city carriage painting, with style about it, belongs to a higher grade of mechanical art than some of our country friends appreciate. It requires intelligence and taste as well as long experience; and the carriage-painter who possesses all these qualities is a rare sort of bird, who, when secured, deserves good pay and the best possible working facilities.

WHAT CAUSES PAINT TO BLISTER AND PEEL.

WE published in the Paint-shop Department of our July number (page 260), a very interesting communication on the subject of “Paint Blisters,” received from Mr. Louis Matern, of Bloomington, Ill. The same writer simultaneously contributed to the *Scientific American Supplement*, of June 28th, an elaborate and highly important paper on the same general subject, from which we quote the following additional particulars.

* * *

Boiled oil, though in general use, is unfit for durable painting. It is the cause of most of the troubles painters have to contend with. Raw linseed oil, seasoned by age, is the only means to bind pigments for durable painting; but how to procure it is another trouble to overcome, as all our American raw linseed oil has been heated by the manufacturers, to qualify it for quick drying and an early market, thereby impairing its quality. After linseed oil has been boiled, it becomes a poor varnish; it remains soft and pliable when used in paint, giving way to air pressure from the wood in hot weather, forming blisters.

Turpentine causes no blistering: it evaporates upon being exposed, and leaves the paint in a porous condition for the gas in the wood to escape.

All painters agree that blistering is caused by gas, and on investigation we find two main sources from which gas is generated to blister paint—

one from the wood, the other from the ingredients of the paint. The first-named source of gas is started in hot weather by expansion of air confined in painted wood, which presses against the paint and raises blisters when the paint is too soft to resist. Tough, well-cemented paint resists the pressure and keeps the air back. These blisters mostly subside as soon as the air cools and returns to the pores, but subsequently peel off.

Some assert that damp in painted wood turns into steam when exposed to sun heat, forming blisters; yet this cannot be possible when we know that water does not take a gaseous form (steam) at less than 212° F. But water has an influence toward hastening to blister paint; it holds the unhardened wood-sap in solution, forming a slight solvent of the oil, thereby loosening the paint from the wood, favoring blistering and peeling.

There is a certain kind of blisters which appear in certain spots or places only, and nowhere else, puzzling many painters. The explanation of this is the same as before—soft paint at these spots, caused by accident, or sluggish workmen having saturated the wood with coal-oil, wax, tar, grease, or any other paint-softening material before the wood was painted, which reacts on the paint to give way to air pressure, forming blisters.

The second cause of paint blistering from the ingredients of the paint happens between any layer of paint or varnish on wood, iron, stone, or any other substance. Its origin is the gaseous formation of volatile oils during the heated season, of which the lighter coal oils play the most conspicuous part; they, being less valuable than all other volatile oils, are used in low-priced japan dryers and varnishes. These volatile oils take a gaseous form at different temperatures, lie partly dormant until the thermometer hovers at 90° F. in the shade, when they develop into gas, forming blisters in air-tight paint, or escape unnoticed in porous paint.

Inasmuch as soft-drying paint is unfit to answer the purpose, it is equally bad when paint too hard or brittle has been used, that does not expand and contract in harmony with the painted article, causing the paint to crack and peel off, which is always the case when either oil or varnish has been too sparingly and turpentine too freely used. Intense cold favors the action, when all paints become very brittle, a condition often to be seen on low-priced vehicles in winter time. Damp in wood will also hasten it, as stated in blistering, the wood-sap undermining the paint.

To avoid peeling and blistering, the paint should be mixed with raw linseed oil, in such proportions that it neither becomes too brittle nor too soft when dry. Priming paint with nearly all oil and hardly any pigment is the foundation of many evils in painting; it leaves too much free oil in the paint, forming a soft undercoat.

To avoid an excess of oil, the following coats need turpentine to insure the same proportion of oil and pigment. As proof of this, prime a piece of wood and a piece of iron with the same paint. The wood takes up part of the oil from the paint and leaves the rest in proportion to harden well, where at the same time the paint on iron remains soft. To be more lucid, it need be explained, linseed oil boiled has lost its oleic acid and glycerine ether, which form, with the bases of pigments, the insoluble soap, as well as its albumen, which in boiling is thrown out. It coagulates at 160° F. heat; each is needed to better withstand the action of wind and weather, preventing the dust from attaching itself to a painted surface, a channel for ammonia in damp weather to dissolve and wash off the paint. In later years linseed oil has been extracted from linseed meal by the aid of naphtha and percolation. The product is a very clear quick-drying oil, but one lacking in binding quality, no doubt caused by the naphtha dissolving the fatty matter only, leaving the glycerine and albumen in the meal.

Green, sappy, or resinous wood is unfit for durable painting; and to avoid blistering and peeling, wood should be well seasoned and primed with all raw linseed oil, some dryer, to insure a moderately slow drying, and as much of a base pigment as the painter can possibly spread. (Much dryer takes up too much oil acid, needed for the pigment base to combine with.) This insures a tough paint that never fails to stand against blistering or peeling, as well as wind, weather and ammonia.

The coach and car painter can materially improve his painting by first oiling the wood with raw oil, then smoothing the surface down with lump pumice-stone, washing it with a mixture of japan dryer or, better yet, gold-size and turpentine, wiping dry, and following it up with a coat of white-lead, oil and turpentine. The explanation is: the raw oil penetrates the wood and raises the wood fibers on the surface to be rubbed down with pumice-stone, insuring the best surface for the following painting; to harden the oil in the wood it receives a coat of japan dryer, which follows into the pores and there forms a tough, resinous matter, resisting any air pressure that might arise from within, and at the same time reacts on the first coat of lead as a dryer. This mode insures the smoothest and toughest foundation for the following painting, and may be exposed to the hottest July sun without fear of either blistering or peeling.



*BELATED PRIZE DESIGN FOR TRIMMING A
PHYSICIANS' PHAETON.*

BY "ANONYMOUS," OF NEW-ENGLAND.

(Continued from page 336 in last number.)

A TOP to a carriage of this description constitutes an important feature of its general appearance, as it presents the greatest area of surface and is a very conspicuous portion; and it is therefore specially important that it should have pleasing outlines and proper proportions. These conditions are best determined by the carriage draftsman, for whenever these points are left solely to the discrimination of the trimmer or jobber, ill-shaped and disproportionate tops are likely to follow, as the form, size and shape of a skeleton frame are often very deceptive. The accompanying elevations of the top are therefore not intended as a guide, but merely to aid to illustrate the trimming.

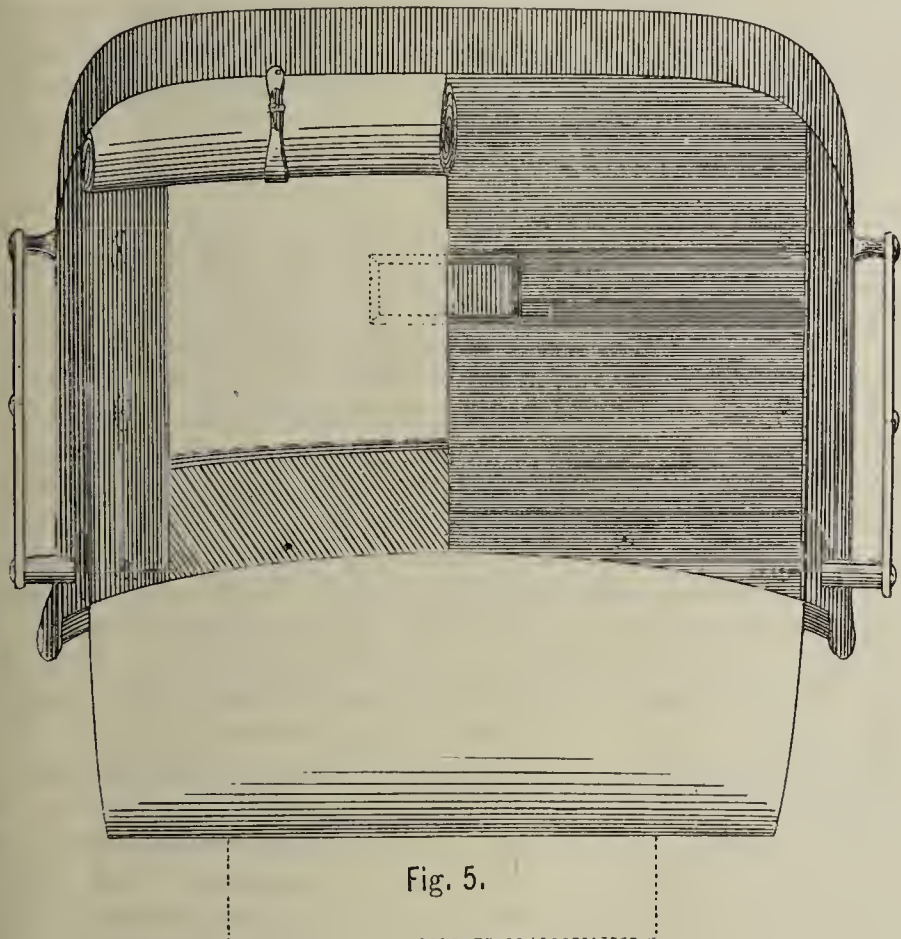


Fig. 5.

The side elevation, Fig. 6, shows the outlines of a close four-bow top, with a rectangular light at face height. To carry out the sweep of the body, a comb at the corner of the top is necessary. The corner of the back bow, therefore, requires blocking up square, and the proper sweep must be given to the comb from a pattern obtained from the working draft.

A storm bonnet at the front bow is indicated in Fig. 6, as this is frequently demanded; but, owing to the considerable drop here given to the front bow, it is hardly necessary in this case. These bonnets certainly do not add to the appearance of the top.

For this particular class of carriages, a serviceable and ample dash apron is indispensable; and, where cost is not essential, a leather apron, lined with good linen, proves the best, although rubber duck is more commonly used.

An apron permanently attached to the body, and folded against the dash, presents the objectionable feature that it is unhandy to clean, and it is also liable to soon rot at its fastenings. Moreover, the combined services of two persons are required to again neatly fold it to its place. A jacket apron, covering and protecting the dash, and also readily adjusted or removed, is shown in both Figs. 6 and 8, adjusted by the dotted line. From the top of the dash the apron sinks vertically to the top of the whip-socket, where a circular hole is punched to admit the whip; and from this line it takes its inclined rise well up into the top. Across the top of the dash and down the entire sides, the separate front covering is closed in. At the desired height in the top is secured a hook, provided

with a shank; and to readily adjust or remove it, a metal ring is attached to the corners of the apron with a strap.

To prevent the wind whipping about the loose ends, a hook similar to the one just described, but with a snap-spring attached, is secured at a convenient point, where the rockers take their rise; and a ring and strap are attached at a corresponding point on the inside of the apron. These are also indicated in the inside quarter elevation, Fig. 8. The height of the apron requires that a rein-hole be provided, with a covering.

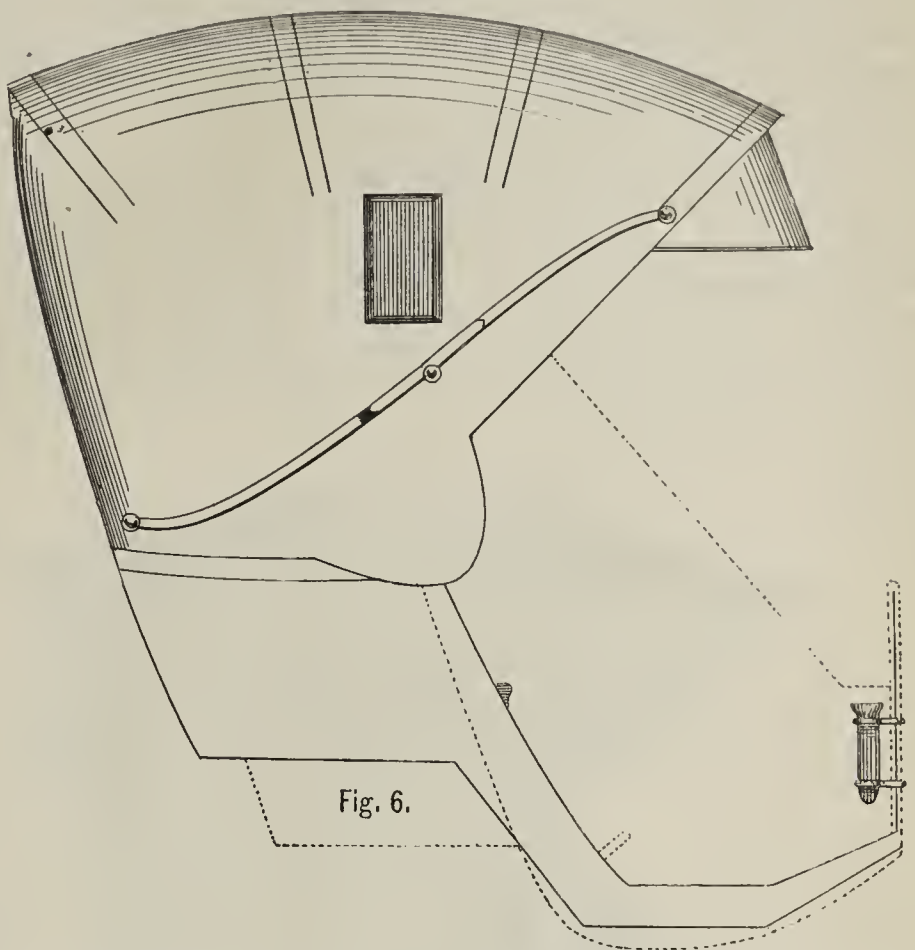


Fig. 6.

The ample cod-piece shown is intended not only to well cover the ends of the bows when the top is let fall; but, by the distance between the points of fastening from the bows to the body, to prevent undue strain coming upon these in letting fall the top, and that no fullness shall be required in the leather.

It is always advisable to ascertain the track of the bow in falling before these extreme fastening points are determined, as a limit can be reached,

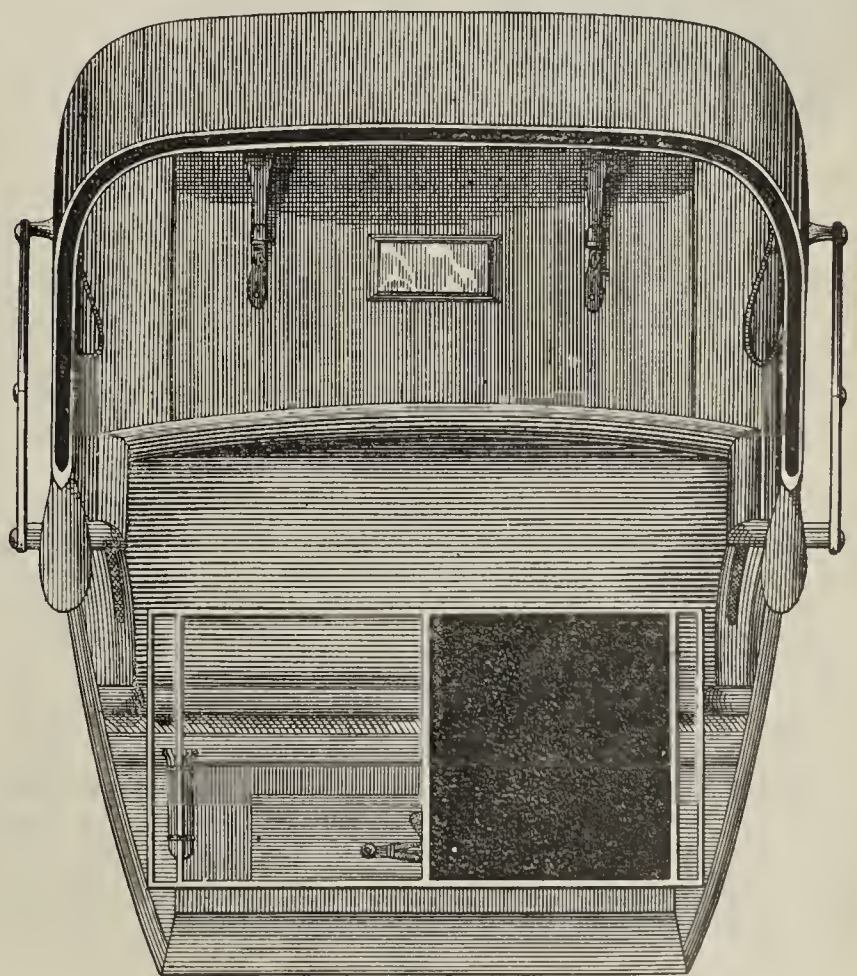


Fig. 7.

either by extending the point on the bow or body, so that the instant the bow begins to move in falling, all strain upon these is entirely removed.

One joint is here shown, the knuckle being intended to fall back and present no interference in case lamps were attached to the sides of the body.

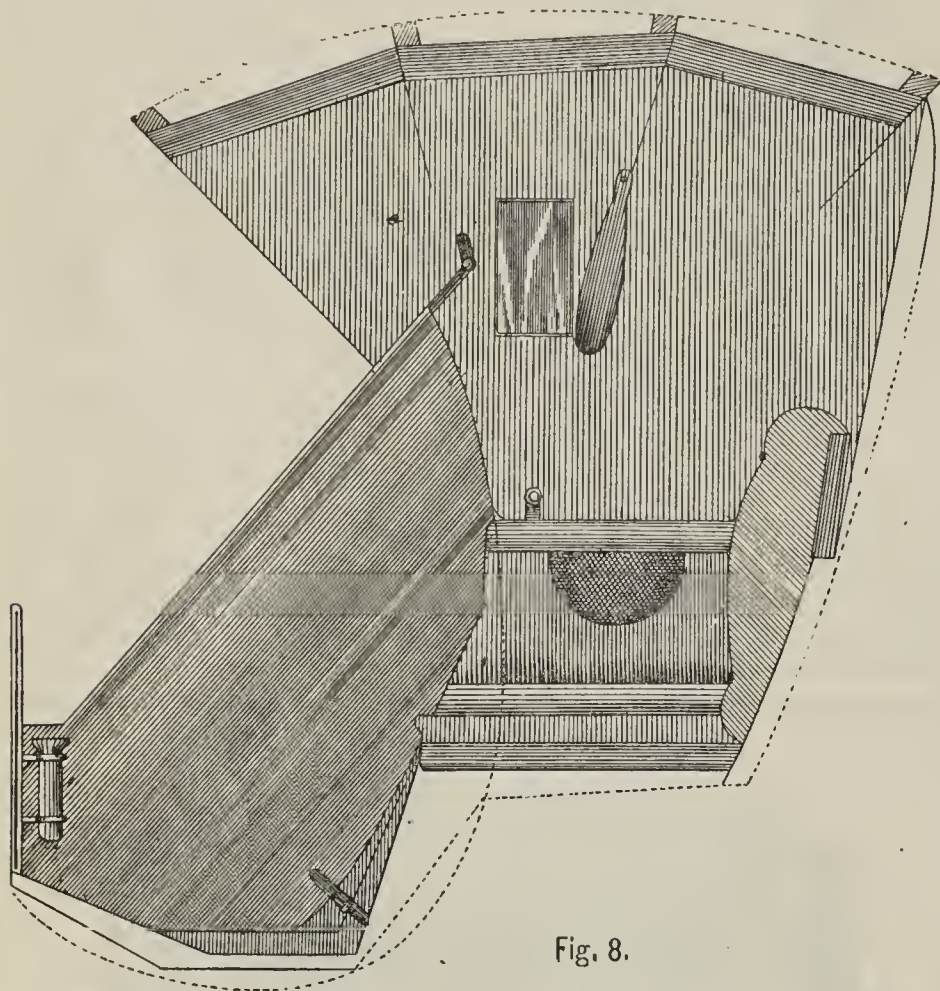
In the back elevation, Fig. 5, an imaginary division of the back curtain is shown, with one-half of the division rolled up, showing the width of the stay. This curtain extends across the entire width of the body to the corner combs. A light is also indicated on a line with those at the side-quarters.

Swivel curtain-fasteners are riveted to the stays to secure the curtain, and knobs fulfill this function at the bottom.

Straight-grained leather is recommended for this style of carriage with a close top; and, to avoid breaking the grain by the falling of the top, the stripes should run across the roof, curtain and stays, but vertically on the side-quarters.

In the front elevation, Fig. 7, an imaginary division of the dash is shown, to give the general effect of the whole trimming from a front view. The dash should be covered with grain leather, both sides. The inside frame of the curtain light is to be covered with cloth. The foundation of the roll-up straps is to be heavy enameled leather, with the front side covered with collar leather, and ornamented by a buckle. The seam lines of the roof are also indicated.

A front bow valance is a conspicuous object, and it should present a neat appearance. This might be best attained by following the method adopted on heavier work, namely: by finishing the leather and head-lining on the front face of the bow. Use patent skirting leather, cut to the desired shape, using the bow for a pattern. Miter at the corners, and bind the edges with leather. Tack this valance to the bow, and afterward cover the tacks with a brass molding specially designed for the purpose, containing short points and set close.



The inside quarter elevation, Fig. 8, shows the general appearance of the side trimmings, the height of the apron, and the points where secured.

Loop arm-holders and their position are also shown. Although simple in their design, these add considerably to the general effect. A firm piece of enameled leather is shaped to the desired pattern, and the cloth material pasted on both sides. Blind-bind the edges with the cloth, and secure to the intended position by plated or rubber-headed screws.

Separate bow pockets, to cover the ends of the bows, are here omitted, as they present the objectionable feature that a large opening is presented between these and the head-lining when the top is let fall. To avoid this defect, a pocket is formed of the head-lining itself. The head-lining material is therefore required to be of ample length.

A button-hole is worked in the cloth to slip over the collar of the goose-neck prop. Allow the material to extend well below this point, to allow sufficient room for the bows to play and bring no strain upon the material forming the pocket in falling. Then the material is brought up on the outside of the bows a sufficient distance to well cover the ends of the bows and form the pocket. This method, however, cannot be applied to all the variously constructed slat-irons now in use, which must be duly considered before this method is attempted. A., of N. E.

THE END.

HOW TO KEEP WELL.

BY AN EXPERIENCED NEW-YORK PHYSICIAN.

CHAPTER IV. CARRIAGE TRIMMERS.

THE carriage trimmer is fortunate in having an occupation which is not of itself attended by conditions productive of ill-health. It is of a somewhat sedentary nature, and the trimmer should therefore regulate his life, while away from his work, so as to secure a proper amount of

exercise and pure out-of-door air. By attention to this latter particular he will find himself more energetic and ready for work, and with a better appetite; for heated and impure air, and a somewhat confined position while at work, would have some tendency toward impairing the appetite and weakening the lungs, or developing any disease toward which there might be an inherited tendency.

We understand that constipation is very common among this class of workmen, and this, together with the numerous evils which arise from it, should be guarded against, by proper attention to food, eating of fruit and fresh vegetables, systematic exercise, and regularity in daily going to the water-closet, never postponing the duty when there is the slightest disposition to it. The use of prunes, such cereal food as oatmeal or wheaten-grits, apples, berries and oranges, the latter being employed before breakfast sometimes, will all be found helpful in this regard.

Avoid cathartic medicines as far as possible, and never employ them except in emergencies at occasional long intervals, because, when used habitually, the system soon becomes accustomed to them and they lose their effect. Furthermore, they do not produce the *natural* action of the bowels which is sought to be obtained by a regular mode of living.

In this connection, owing to the prevalence of the fashion of drinking considerable quantities of hot water in case of various disorders of the stomach and of the bowels, we wish to emphasize the fact that this sort of treatment is quite as often productive of injury to the health as it is of benefit. Selected cases of dyspepsia, only, should be treated in this way, and preferably under the advice of a physician; for diluting the gastric juice in a great measure by the copious addition of water, renders it much less useful in the function of digestion.

"What shall the carriage workman drink during the heated term?" is a question that has been addressed to us, in response to which we would caution all to avoid large quantities of any liquid, particularly very cold ice-water. Take liquids in small quantities and often, if necessary, drinking slowly. Oatmeal-water is preferable to ordinary water, particularly where ice is not easily obtained; and, at home, a refreshing and slightly stimulating drink will be found in iced-tea.

CHAPTER V. BOSSES AND OFFICE WORKERS.

To the proprietors of carriage-shops we have little to say except to observe, first, that in their relations with their workmen, it would be well for them to adopt the rule of doing to others as they would be done by. A little care and attention on the part of the proprietor can often secure to his workmen better health, and superior work, cheerfully rendered.

Let the proprietor endeavor to put himself in the place of each workman as he makes a tour of inspection, and, above all, see that plenty of pure air and good light are secured to the mechanics. If a room is not well lighted, make it brighter and more cheerful by the use of whitewash or light paints, the former article being a cheap means of rendering an otherwise dark and unwholesome room both cheery and healthful. Avoid, also, all conditions that tend to make the warerooms damp, as this is a fruitful source of ill-health, particularly to carriage smiths.

Proprietors, salesmen and other office workers are themselves liable to dyspepsia, mainly caused by irregularity in meal hours, and by the violent exercise of running up and down stairs, to which they are tempted. By the mention of these causes producing the disease, certain natural means for avoiding it are suggested. Eat at regular hours, taking plenty of time about it, in order that the food may be properly masticated and thus prepared for stomach digestion.

Excessive smoking and drinking are of course to be avoided by all having a tendency to dyspepsia; but a cigar after the noon meal, providing it is instrumental in preventing the boss from hurrying back to his work, is not altogether to be deprecated.

It has come to our notice that proprietors of carriage works are often troubled with swollen feet and ankles,—a condition largely due, no doubt, to the strain caused by frequent and hasty journeys up and down stairs; and occasional cases of varicose veins are reported. These ailments have been so fully explained under our hints to blacksmiths, in whose occupation damp and cold floors form a condition particularly unfavorable in this respect (see *The Hub* for May, 1884, page 114), that we will merely refer the reader to that chapter.

The carriage proprietor who not only has considerable physical exercise, but also more or less mental care and anxiety, will find it to pay ultimately if he takes occasional vacations of sufficient length to effectually break in upon the routine of his customary business life.

Book-keepers, owing to the sedentary nature of their work, should observe the precautions heretofore suggested to those in whose employment there is a deficiency of exercise.

Preservation of the eyes and of good vision being to office workers of supreme importance, there should never be an unnecessarily added strain from bad light. There should also be method in the performance of work of this nature, with allowance of suitable periods of rest for the eyes.



TRADE GOSSIP OF THE PAST MONTH.

FEW new developments have occurred in the carriage trade during the past month, and these few will be found duly noted under our "Trade News" department. It was a dull month, but August is usually a dull month; and, under present circumstances, the absence of news cannot but be considered fairly good news.

* * *

THE most surprising piece of news that reached our office last month was the announcement that a Wisconsin firm of wagon-makers had brought out a trade periodical bearing precisely the same title as our own. We are at a loss to understand the meaning of this. It seems hardly possible that they should be ignorant of the existence of our magazine, and equally improbable that so reputable a house should knowingly infringe on our copyright. We immediately addressed to them a letter of inquiry, and now await particulars.

* * *

WE received last month, from the *New-York Tribune*, a copy of its sixteen-page extra on the subject of "How Free Trade Works: Robert P. Porter's Letters on Industrial England," which we have read with interest, and commend to the careful attention of manufacturers and workmen, whatever their individual opinions on the tariff question may be. Mr. Porter writes as an advocate, but his advocacy is intelligent, and backed by many interesting facts and figures. This extra costs only five cents, and will be supplied to *Hub* subscribers from this office if desired.

* * *

THE event of last month in sporting circles occurred on Saturday, Aug. 2d, when Maud S., at Cleveland, O., beat the best previous record by trotting a mile in 2 minutes and $9\frac{3}{4}$ seconds; and, had the track been in better condition, it is thought she would have made still faster time. The limit of the carriage-builders' four-footed friends in this direction is now again an open question. Hardly had we recovered from the thrill of astonishment and delight at Jay-Eye-See's performance in 2.10, when suddenly, and without a word of warning, a quarter of a second has thus been taken off the record by his famous rival, that therefore still remains the Queen of the American turf. As there is nothing to prove that Jay-Eye-See cannot get the time down to 2.09½ and so on, for some time to come, there may be further surprises, just as great, still in store for us. Mr. Vanderbilt is said to have paid his driver \$10,000 for this last quarter of a second.

* * *

WE hope all our readers have given some attention to the series of six health articles by Dr. Partridge, prepared with special reference to the needs of the carriage mechanics, which have appeared in *The Hub*, concluding in this number, page 408. We are aware that those who most need such admonitions are the very ones who least consider them; but we hope some few of the suggestions published may have been taken to heart; and we are glad to notice that our contemporary, the *Coach Painter*, is making further efforts in the same direction. The importance of the subject to both workers and employers, from a financial standpoint, is admirably set forth in an address by Sir James Paget, delivered at the opening of the recent Health Exhibition in London, England. He calculated the average annual number of days' sickness of each person during what may be deemed the normal working time of life, that is, between 15 and 65 years of age. The average time of sickness among males during the working years was 1,314 weeks—that is, a small fraction more than nine days each in each year; and in females it was a fraction more. The result was that, among males, there was an aggregate loss of 9,692,505 weeks' work in every year, and, among females, 10,592,761 weeks. Thus we are led to believe that the entire

English population between 15 and 65 years old do less work in each year by 20,000,000 weeks' time than they might do if it were not for sickness. Sir James further states that a very large proportion of the sickness and loss of work which he saw might have been prevented, or that in every succeeding generation a larger proportion still might be averted, if all men would only strive that it might be so. Of the special diseases of artisans, he gave it as his opinion that there are very few which might not be almost wholly avoided; and, of the accidents to which they are especially liable, the greater part are due to carelessness; and, of the diseases due to bad food, mere filth, intemperance, and immorality, so far as these are self-induced, these might by self-control and virtue be excluded. He expressed his conviction that, of all the losses of work of which he had spoken, and the millions of weeks sadly spent and sadly wasted, at least a fourth part might have been saved; and that, henceforth, if people would have it so, a still larger proportion might be prevented. We hope the practical suggestions contained in *The Hub* and *Coach Painter* may contribute something toward this end; but, to effect this result, our friends must both read and utilize them.

OPEN BALLOT FOR NEXT PRESIDENT OF THE C. B. N. A.

PAPER No. V.

As promised in our last number, we present below numerous extracts from the correspondence which accompanied the votes contributed by members of the Carriage Builders' National Association to *The Hub's* informal ballot for the next President of the society.

These expressions are made anonymous, for obvious reasons; and the only information we feel authorized to make public in respect to their authorship is, that they are about equally divided between Eastern and Western correspondents, and that the originals, of which these extracts are merely representative, include expressions by nearly all the more prominent officers and members.

* * *

In one letter we find the following inquiry, which seems to deserve attention at the very start. This correspondent asks:

No. I.

"Are Honorary Members eligible to office in the Association? Your reply will oblige me."

Our opinion is that Honorary Members are not eligible to the offices of President, Vice-Presidents or Executive Committeemen. The Constitution and By-Laws contain no expression on this question; but Article I of the Constitution deprives them of the right to vote, and as the privilege of casting the decisive vote in case of a tie-ballot is one of the powers of every chairman, this would seem sufficient to debar Honorary Members from the positions of President and Vice-President; while an Executive Committeeman who had no power to enforce his views through the ballot-box would certainly be an anomaly.

No. II.

The following is representative of a large number of the letters now before us,—negative or indecisive in character, but at least giving no hint of dissatisfaction with the present management of the Association:

"In answer to your circular, I beg leave to say that, as an Honorary Member, I have no special choice as to who shall be a candidate, and prefer not to make a suggestion."

No. III.

Here is another expression from an Honorary Member, which is also friendly even if equally indecisive:

"My position in the Association is but an honorary one, and I am not practically in the business of carriage building. I would prefer, therefore, that those who are Active Members control the matters of the Association by their votes."

No. IV.

Another Honorary Member says:

"I have not yet had an opportunity of forming the acquaintance of any of the members, and therefore could not vote intelligently."

No. V.

The following is representative of another large class of members, mostly Active, who go a step further, and express general approval of the present and past management:

"Your circular letter of May 5th is at hand, and inclosed find the name of my choice of a candidate for President of the C. B. N. A. for 1885. While voting for a Western man, please allow me to explain, at the same time, that I have

always been pleased with every President since my connection with the Association. I am in hopes to meet with you at the convention next October."

No. VI.

There are also quite a number of "straddles." Here is a representative of that class:

"Responding to your circular letter, I would say, if the next President is to be an Eastern man, I would cast my ballot for J. W. Britton, Esq., of New-York; if Western, then C. D. Firestone, Esq., of Columbus, O. I inclose ballots in accordance with these views."

No. VII.

Here is the vote of one prominent member which was not numbered among our "Indecisives."

"I inclose my Presidential ballot in favor of Mr. John W. Britton. I think, after reading his masterly article in the June *Hub* on "Causes of Strikes, and How to Avoid Them," that he is the most efficient man in the trade, and should be placed at the head, and act as President for life!"

No. VIII.

Another friend of Ex-President Britton expresses himself as follows:

"If you want to know my individual choice of President for the Association I will give it; it is John W. Britton. However, I think the proper thing for the Association to do, is to re-elect Mr. McLearn next year. It has been customary, since the Association was formed, to re-elect a President twice; and why we should cut McLearn off with two years I do not know. All this talk about officers possibly shows there is more interest taken in the Association than formerly, and if some of our Western friends want the office I hold, they are perfectly welcome to it; I do not hanker after it."

No. IX.

A friend of the present President is quite as enthusiastic as No. VII, expressing his views after this decisive fashion:

"If I had one hundred votes to send, each one would be for Mr. H. C. McLearn, of Wilmington, Del., who is qualified for the position in every way. 'Rah for McLearn!'"

No. X.

The next witness is somewhat more restrained, but equally friendly to the present management.

"It will hardly be necessary for me to express my preference for President for the C. B. N. A. for next year, as I have always been a friend of the present incumbent, and voted for him in convention when Mr. Studebaker declined. He has made a good and satisfactory President, and if the plan of a President remaining in office three years is to continue, I should vote for him again with much pleasure."

No. XI.

No. XI has no complaint to make.

"Concerning the nomination and election of officers of the Carriage Builders' National Association, treated of in your circular letter at hand, and your request to know my preference for President of the Association, I, as a Western member, have merely this to say: I have no present choice for President of the Association, but expect to be pleased with the selection of the nominating committee, as I have been heretofore. I might add that, in my opinion, there have been no just grounds for complaint, either in the choice of officers, or in the nature or extent of the services which they have rendered. On the contrary, there seem to me obvious and excellent reasons why the majority of the Executive Committee should be Eastern men."

No. XII.

And the next witness is equally satisfied with the past and present.

"So far as I am concerned, as a Western member, I must say that I have no preference in this matter. I am perfectly satisfied with the Executive Board, and esteem them all. I think we should all work for the good of the Association, regardless of questions as to locality of its officers. If it is best to have them all near together, I say let's have them that way."

No. XIII.

No. XIII appears equally disposed to be pleased with whatever happens.

"Mr. — and the writer have no positive preference in the next Presidency of the Association, but both of us think so favorably of Mr. — that we have put his name on the card. We have, however, no pronounced views as to man or locality. Were it thought best to have a Western man, we should think favorably of Mr. Clement Studebaker, or of Mr. Chas. P. Kimball, if he would consent to serve again. If it were to come East, we should favor either Mr. —, or Mr. —."

No. XIV.

No. XIV is a little fearful as to the ultimate effect of our public ballot, thinking it may tend to develop sectional prejudice:

"I have plenty of faith in *The Hub* and its Editor, and am not worrying, but I am afraid you have given your competitors a chance to attack you that will not do the Association any good. I am not afraid of your ability to take care of yourself, but all agitations of this kind tend to build up a Western and an Eastern party, that bodes no good to the Association's future. I am, therefore, sorry you started the ballot. Not that it affects me personally, in my minor position, for I am of that kind who don't care much for personal preferment, and if the C. B. N. A. want to turn me out, I am perfectly content. There is much that I would like to say to you, and will stop in your office when in your city."

No. XV.

The correspondent next quoted also expresses a fear that our ballot may prove detrimental to the interests of the Association:

"Your circular with ballot is received. I beg to decline filling out the ballot. I think the sending out of the circular and ballot a great mistake. It is attaching altogether too much importance to the complaints of chronic fault-finders, and is calculated to engender an agitation that cannot fail to prove injurious to the welfare of the Association. Any enemies the C. B. N. A. may have, will not be slow

to make use of the weapon thus put into their hands by its friends. A member whose interest in the Association is so weak as to make it a matter of indifference whether he attends or not, should not have it in his power to influence the choice of officers; while Honorary Members, of which I am one, should leave the election of officers and making of the laws to the Active Members. I have never heard a complaint from an Active Member, or from an Honorary Member who is actively engaged in manufacturing, or one who has contributed to the funds of the Association beyond the payment of dues and dinner tickets. A discussion of the subject in the columns of the trade journals might prove interesting and valuable, but anything that gives a personal-political-cavass character to the movement, such as filling out of tickets, is, in my opinion, ill advised."

No. XVI.

A grievance now appears. There are two letters which contain positive complaints, and of a somewhat amusing character. Here is one of them:

"Inclosed please find my vote, and I think your idea a good one. You say in your circular the Association has become a target for pea-shooters. It is a wonder to me that some one has not thrown bombshells about the way the annual dinners have been served. I suppose that, as you sat with the elect, you were not aware how the rest of us were fed at the last banquet. Those at the table I sat at got about twenty-five cents' worth; while at the table almost within reach of us, you lucky chaps had good and lots of it. I do hope you will touch them up on this subject."

No. XVII.

And here is another who echoes the sentiment of the last:

"My ballot for President of C. B. N. A., I now inclose. Your Honorary Member who didn't get half enough to eat at New-Haven, probably referred to the banquet at the Opera House. I think that if you ask any member who sat half-way down the tables, you will get about the same reply."

No. XVIII.

Here is a correspondent who believes in short Presidential terms, and tells his reason why:

"Probably the thing to do, at either the next meeting or one year from now, is to increase the Executive Committee to nine, say four from the West and South, and five from the Atlantic States, and to make the term of office of President, say, not more than two years; perhaps it would be better that it should be only one year. You will see my reason for this: it would go around so much faster. There is now a good Executive Committee, that is reasonably permanent. They can give directions to all things, and assist the President if he should not know as much about his duties as those we have had in the past. Another officer may be necessary, namely: an Assistant Secretary."

No. XIX.

No. XIX also approves of short official terms:

"I would repeat now what I wrote before. Our present President was my choice two years ago, and is now, for reelection. At the end of his term, I believe it would be for the best interests of the Association that the term of office should be shortened; that the Executive Committee should be increased in number; that an Assistant Secretary should be appointed or elected; and, further, that the present Executive Committee, with some of the leading and best members of the Association, should have a conference and look carefully over all matters pertaining to the Association before our next annual election, that all things shall be done for its good. When I see you I can say more, which I do not think best to write."

No. XX.

No. XX thinks the present mode of nominating officers at the annual meetings might be improved, and suggests how, in his opinion, it could easily be done:

"I notice that the two last issues of *The Hub* have contained ballotings for President of the Association. I regard the Presidency of the National Carriage Builders' Association a distinguished compliment and honor to the person chosen for the office, but I could not consent to accept it, even if I were sure of election. It will always be my aim as well as pleasure to attend the meetings of the Association whenever possible, and to do what I can to assist in furthering the objects of the organization. While I am on this subject, I may as well say frankly that I think some other method of choosing our officers would be more satisfactory, although I can assure you that I have been well pleased with the selections heretofore made. I believe, however, if our nominations were called for in open convention, the different States or sections naming their choice, and then proceeding to vote for the nominees in the usual manner, the method would give better satisfaction than that now employed. My idea is that nominations made as I suggest would create a pleasant spirit of rivalry that would awaken an added interest in our sessions. I want it understood that I am first for harmony and entire good feeling, for without these it will be useless to look for good results from our Association."

No. XXI.

No. XXI seconds the above motion, as follows:

"I am not at this early day prepared to vote for President of the Association, and I do not think the ballot you propose, including many members who have no vote, would be of any value; and it might at some future time become a bad precedent, by giving one man the information necessary to manipulate an entire convention. You speak of complaints. I have not heard of any, and know of no grounds for any. I have been a regular attendant at the annual meetings of the Association since its first organization in New-York, and have always felt that the last meeting was better than the preceding one, and I believe the members generally have felt the same. I have heard suggestions, not complaints, that a change in our mode of election would be desirable, and I think the time has arrived when a discussion of that subject would be in order. I believe a direct ballot, and a friendly contest for official honors, would create a new interest and increase our attendance. If the President of the United States were legally authorized to appoint a committee to nominate his successor, can you doubt who would succeed him? You claim that the office of President has heretofore gone a-begging. In this I most decidedly differ from you. I believe that the very able men who have occupied the Chair, have gladly accepted, felt proud of the position, and amply paid for the labor performed; and, further, that the members have always evinced a reciprocal pride and full confidence in their President, Secretary and Executive Committee. I consider all the East and West talk entirely out of place, and unworthy of any member of the Association. I certainly hope that geographical position will never become a factor in our elections. I have noticed the war of words in our trade journals—about nothing, as I look upon it,—and consider it decidedly detrimental to the best interests of the Association."

No. XXII.

The same suggestion is again brought forward and further emphasized by No. XXII.

"You say that you are convinced that the present executive force is entirely satisfactory, and that it is popular and has the respect and faith of the trade. Of the latter I am agreed. The Association is prosperous, and at present there is no sectional jealousy that will break it asunder. On the part of the Association there is no controversy. It is safe and secure. No one objects nor finds fault. It is satisfactory. Of the future,—that is the only question. My information, obtained from a number of influential members, is not as you say. From them I find that, although those composing the present Executive Committee are satisfactory as far as they go, and perfectly so, these gentlemen claim that the Western States should be more largely represented; and, to allow this, the Committee should be increased to nine, and at the last meeting of the present Executive Committee I understand it was unanimously agreed to recommend this increase. I take it that it is both politic and wise to make the increase. Why not, then, recommend that the Committee consist of nine, with four as a quorum. There is no objection to New-York being the headquarters, as it should be. Can you see any objection to this? I wish I could see you, as it is so very hard for me to write, and I will do so some day soon, so we can talk it all over."

No. XXIII.

No. XXIII briefly and cheerfully scans the past, present and future, his letter forming the best kind of a conclusion to the whole matter.

"I will write to you as I would not talk to the public, but look over this matter a little which you and the other trade journals have been discussing. If

THE OSGOOD WOOD-FILLER FRAUD.

THE editorial in our last number entitled "Another Lazier in the Field" (page 339), has called in a large amount of correspondence. This is chiefly of a confidential character, but the following five letters contain facts which members of the carriage trade have a right to know at this time, that they may promptly identify and protect themselves against this Osgood Wood-Filler swindler, whose record of crime is evidently a long one, and his latest exploits so recent that there is every reason to believe that he is still in the field.

LETTER NO. I.

PHILADELPHIA, Pa., July 24, 1884.

TO THE EDITOR—DEAR SIR: Yours of 19th is at hand, and I am glad to see that *The Hub* is trying to bring to justice the man who has been selling the worthless Wood Filler recipes.

I cannot give any more of a description of him than that given you over a year ago. See my letter in the January *Hub*, 1883, page 618. Those facts I gathered from several carriage-makers whom he had called on about that time. In that letter you will find him described as follows: "About 28 or 30 years old, medium build, light complexion and sandy mustache; well educated and a good talker; dresses very neatly; claims to have been in the carriage trade in the West, but gives no name."

Since you exposed his scheme in your columns, he has not been heard from in this State.

"Globe Carriage Finish"
Shellac
Borax
Glue (Common Cabinet)
Dry Zinc
Rain Water
S.E. Walling
1201 Race St Cincinnati Ohio

1 oz
3 "
1 Pound
3 ozs
1 Gallon

PHOTO-ENGRAVED REPRODUCTION OF MANUSCRIPT RECEIPT WRITTEN BY THE OSGOOD WOOD-FILLER FRAUD.

(See Letter No. I, by Mr. Arthur Bittong, accompanying.)

you will go back to our meeting at Chicago three years ago, you will remember one member suggested that the time would soon come when the Association would be obliged to take part of its executive officers from the West; and further, that he thought it best for the Association to anticipate such a time by doing it and not waiting for the members to demand it. When we met in Cincinnati, there was one Western member elected, Mr. Firestone. I think there should have been more elected at that time. Then, at the next meeting, at Philadelphia, they only elected the one and superseded the senior Vice-President, who was in the West, by an Eastern man. I know who has built up the Association; I know who has done the work; I know who has made it what it is; and I know that there are always croakers—parties who won't do anything, but are always willing to find fault with what others do. They are in the Association, both Active and Honorary, and there has been more fault found by Eastern members than by Western, and most of it has come from persons who would never have built up the Association, and would kill it, if in power, by doing nothing, or by waiting for others to do what they ought to do. Still, as we have such members, it is best for those who have the ability, and can now do it, to conciliate those who need it, in so far as can be done without injury to the Association. I believe that, with proper care, at the meeting this fall, all parties can be made happy, and much good accomplished."

* * *

In view of the above frank and exhaustive statements, further editorial comments seem entirely needless. We have now accomplished, to our own satisfaction, the objects we had in view when we inaugurated our "Informal Ballot." We have aroused more active and general interest in the Association's present and future welfare; we have opened our columns for complaints, and made them public; we have afforded an opportunity for free ventilation of all doubtful questions, that these may be duly and calmly considered before the Association meets; and we only hope that the facts thus brought forward may prove of some assistance to those who so cheerfully and ably uphold the arms of the Association in its civilizing and useful labor.

Inclosed you will find one of the receipts Heinzelman Bros. speak of in their letter of July 1st. I have kept it in my possession for a long time, thinking it might some day prove useful.

I am inclined to think that the Osgood Wood Finish & Paint Co. and S. E. Walling are aliases of one and the same person. You will notice that both give their address as Cincinnati, and that the word "Finish" appears on the receipt and also in the name of the Company. In both cases the word is erroneously used. It should be "Priming."

I would suggest that you try to secure one of the original receipts sold by him in Illinois, and compare the hand-writing with the inclosed. In this way we may be able to learn if he is the same fellow who operated over here.

ARTHUR BITTONG.

The original receipt referred to by Mr. Bittong is the earliest we have met with, and is in the handwriting of the swindler, a violet aniline pencil having been used; while all the more recent receipts that have been sent to us are filled out on printed forms. A *fac simile* of the first-named, reproduced by the photo-engraving process, will be found on this page, and its characteristic features deserve to be carefully noted.

LETTER NO. II.

NEW-MILFORD, CONN., Aug. 4, 1884.

GENTLEMEN OF THE HUB: I have been reading your article in regard to the Osgood Wood Finish and Paint Co., and I can tell you that we have all been sold in this part of the country, though it was done so nicely that we don't like to say much about the matter.

An ordinary-dressed man called on me about the first of July (he did not appear to be very sharp), and went rambling over the shop. Finally he struck my painter, and got to talking with him, and said that he had something to show him that would make him laugh. He then went and brought in a small hand-bag, and produced a small bottle of what he called "Osgood's Wood Filling." Then my painter called me in. We brought him an unpainted spoke, and in less than ten minutes it was filled and as handsome as you could expect. Then he produced papers to show that he had sold the article in all the principle shops in the State, and showed us samples of work that had been done with the filler.

Finally my painter said: "George, you had better order two gallons to give it a trial."

"All right," I said, "if you want it."

Then the rascal said: "I can do better than that by you. I will sell you the town, and you can then control the painting, for it will save so much time that you can do work a great deal cheaper than your competitors. I will also sell you the receipt for making, and then you can make as you want, for it is a very simple compound and you can make a gallon in less than an hour."

I bit! I inclose the receipt to you. I have nothing more to say, except that it won't be healthy for the party referred to if I should meet him in my travels.

GEO. E. EDDY,

Manufacturer of Fine Carriages and Spindle Wagons.

The receipt referred to in Mr. Eddy's letter reads as follows. It consists of a printed form, on a single note-sheet, with the proportions of the various ingredients written in with the violet ink, and the signature and address at the bottom likewise written:

WOOD FILLER.

Formula.—Gelatine, 2 oz.; Potash (not lye), 8 oz.; White Glue, 1 lb.; Oxide of Zinc, 4 oz.; Shellac, 3 oz.; Raw Linseed Oil, 1 gal.

Directions for Mixing.—Simply put all the articles in a clean, dry can, and let it stand until dissolved.

Process of Finishing.—For finishing bodies, apply one coat of the filler clear, to the raw wood; this coat can be put on heavy with a stiff brush; let it stand eight hours to harden, then sandpaper it down to the wood, using a block and a No. 1 or 1½ sandpaper, then apply a second coat of the filler clear. This coat must be put on light and even, the same as a coat of varnish; when this is dry, apply two coats of color mixed with the filler, then varnish.

The same process on the gear will make an excellent finish, but for ordinary work, only one coat of the filler is necessary.

For finishing in natural wood, use the filler according to the above process, excepting, of course, to omit the color.

For Re-painting Old Work.—Sandpaper the work thoroughly in order to get a rough surface. Then apply two coats of filler to the body (sandpaper the first coat the same as new work), one on the gear, two coats of color on that, and varnish as usual.

NOTE.—Either dry or prepared colors can be used with the filler. Dry colors can be ground in the filler the same as in oil, and in using prepared colors the filler can be used to thin the color with in place of turpentine.

(Signed)

W. F. CAMPBELL,

Care Osgood & Co., 148 Bond-st., Cincinnati, O.

As a further means of comparing the identity of the person who sold this receipt, with the one who wrote the Bittong manuscript, we reproduce below, by the photo-engraving process, the autograph signature and address appended to the Campbell receipt.

W. F. Campbell
C/o Osgood & Co
148 Bond St
Cin Ohio

The Bittong manuscript was written with a colored pencil, and this Campbell signature with pen and ink, which would result in more or less variation in handling; but the two offer points of resemblance so marked as to leave no doubt in our mind as to their identity.

LETTER No. III.

FRANKLIN, MASS., Aug. 5, 1884.

TO THE EDITOR OF THE HUB—DEAR SIR: We notice on page 339, in the August number of *The Hub*, the letter of inquiry in regard to the Osgood Wood Filler, by Messrs. Heinzelman Bros., and your request for information. We can help a little, to our sorrow.

A young man, we should judge about 25 or 28 years of age, dark complexion, smooth face, smart and active in appearance, rather seedily dressed, called at our shop about two months ago, with the above receipts or shop-rights for sale. He showed us certificates of sale with the signatures of nearly all the carriage manufacturers through the country. We would not at first buy, as we were studying on something of the kind, but at last we gave him \$6.00 for the receipt, with the right of selling it, if it amounted to anything. Mr. Hopwood's copy of the receipt, as made public in the March *Hub*, page 793, is the same he sold to us, with the exception of the rain-water. In ours, "1 gallon raw oil" was substituted.

We put the ingredients together and awaited patiently the result. We are waiting still, as the ingredients have never dissolved and never will.

In my travels through the country I have been asked by a great many if I had met the man. They would then show me his can or bottle, and talk loud while doing so. I was asked formerly to write to you, but it slipped my memory till I saw the subject mentioned so prominently in the last *Hub*.

I hope that you may be able to put a stopper on this smart young man.

UNIVERSAL LEATHER LACQUER CO.,

per A. P. S., Jr.

Another New-England witness offers the following testimony:

LETTER No. IV.

MILFORD, CONN., Aug. 5, 1884.

EDITOR OF THE HUB—DEAR SIR: I think I can give you some information about the Wood Filler swindler.

He was here about the last of June. He was dressed in a light suit of clothes, was about 5 ft. 6 in. in height, rather below the medium build, with smooth face, very pleasant manner, and about 30 years of age. He carried a small satchel, in which he had a piece of spoke which he said he had carried three years, and also a block which he claimed was filled with the filler, and colored and varnished. He also had a small bottle of filler for any one to try. He put some of this on a block for us to try. It hardened in about a half hour so we could sandpaper it, and it filled the grain and made a splendid surface, although he said it ought to stand eight hours to harden.

When asked by one of our painters if he was a banker, he answered no; but said he was born in Ohio. He said all the Western carriage-makers used his

filler altogether, in place of lead, mentioning Louis Cook & Co., and a number of others whom I do not remember. He carried also a package of papers signed by carriage manufacturers who he said had bought shop-rights and were using his filler, placing themselves under \$1,000 bonds not to disclose the secret of the formula. Among the latter were Hincks & Johnson and H. D. Gates, of Bridgeport, Brockett & Tuttle, and several others of New-Haven and up the Naugatuck valley.

He gave his name here as W. F. Campbell, Agt. After reading the articles to which you call attention as having been published previously in your March number, 1884, and January number, 1883, I am convinced he is the same fellow.

Yours respectfully,

D. S. W.,

of R. & D. S. Whitcomb.

Ontario, the home of Lazier, has also, it seems, been complimented by a visit from his latest disciple, as testified to by the following:

LETTER No. V.

STONY CREEK, ONT., July 6th.

EDITOR OF HUB—DEAR SIR: On page 339 of the August *Hub* I notice your editorial entitled "Another Lazier in the Field," and your request for readers to give further information.

Well, this man, or some other member of the swindling fraternity, visited my shops in October last, and represented himself as the traveling agent of the Osgood Paint and Wood Finishing Co., of Cincinnati, O., and sole representative for Canada. He showed me several spokes and pieces of basswood finished by the Osgood method, and explained with such a winning way its simplicity and cheapness that I was induced to buy the formula, a copy of which I inclose. Please try it for yourself.

[Here follows the receipt, which we refrain from repeating as it is identical with the Campbell formula presented in a previous column.—ED.]

The following is a description of the fellow who took me in \$2.00 worth, and I am not the only one who was fleeced by him.

He is a young man about 22 or 23 years old, stands about 5 ft. 8 or 9 in. high, face shaven smooth, blue-gray eyes, straight nose, rather large at base, prominent mouth and lips, square chin, square-built shoulders, weighs about 150, or possibly 160 lbs., and a quick speaker. He was dressed in brownish-colored tweeds, with a Christy hard-felt hat. He drove a pair of gray horses of a light rangy build. His wagon was covered like an ordinary patent-medicine wagon, with calash top attached to seat, painted with gear light yellow and black stripes, and box black, with gold letters as follows: "Osgood Paint and Wood Finish Co."

His mode of dealing was as follows: He offered shop rights for \$20.00, and county rights for \$1,000. Finally, he said his time was precious, and he would take \$6.00 for a shop right. I told him I did not think his method would wear. He finally took \$2.00. He had with him a list of names, embracing all the principal wagon and carriage-makers in Ontario, whom he asserted had bought the formula. He bound all purchasers in the sum of \$1,000 not to sell or communicate the receipt to any other person for the term of one year. I have tried it, and find it a fraud. I would like to hear, through *The Hub*, if any one can make it work, and if so, how!

Respectfully yours,

A. C. SPRINGSTEED.

* * *

The above exposition will, we trust, sufficiently guard all *Hub* subscribers from future attempts by the Osgood Wood-Filler man upon their purses. It would give us greater satisfaction if we could announce his incarceration in a good, solid Canadian jail, for we also feel a friendly interest in prospective subscribers, but we hope this appropriate conclusion of the story may follow later.

CARRIAGE DESIGNS FOR OFFICE USE.

AN inquiry received last month from a Western carriage-builder suggests that the substance of our reply to him may interest others who feel the same need that he has expressed. He wanted to know some way by which he could obtain a large collection of carriage designs, on separate sheets, and in such a form that he could classify them, and be able to promptly show to any customer a variety of designs of any class of carriages that might be the subject of discussion. We are well aware that collections of this kind, properly classified, might often prove invaluable to the carriage salesman, but we recall only one instance in which the idea has been worked to any extent by a carriage-builder. In that case special attention has been given for many years past to gathering carriage designs of all kinds, which are contained in a case of eighteen or twenty drawers, each of which is devoted to single class of work, the name of which is written on the front of the drawer, for instance: "Square-box Buggies, with Top," "Square-box Buggies, Open," "Coal-box Buggies," "Ladies' Phaetons," "Gentlemen's Driving Phaetons," "Rockaways," "Coupés and Broughams," "Sleighs," etc. The collection is varied in character, including hand drawings, both plain and colored, photographs, colored plates from *The Hub* and Brice Thomas's French journal, and engravings cut from various journals and illustrated catalogues. The only way to gather such a collection is for some one about the office to make it his individual duty to deposit in it each new design received, and to keep up the practice year after year. In this manner one will soon accumulate a great number of drawings, and when the carriage-builder has once learned by experience how useful they are for ready reference, he is not likely to want to part with them at any price. Before our fire, we possessed a collection of several thousand carriage drawings, including those which Mr. Adolphus Muller had accumulated. They were elaborately classified, and kept in

heavy cardboard cases, and they used often to prove extremely useful to ourselves and our callers. If one has time to spare, it will well repay for the trouble if printed designs from the trade journals and catalogues be pasted upon cards of uniform size, which will both improve their appearance and insure their durability; and, if desired, the printed description of each may be pasted upon the reverse side of the card. The trade journals alone can thus be depended upon to add several hundred new designs to the collection each year.

TARIFF OF REPAIRS FOR BUSINESS VEHICLES.

The Carriage and Wagon Makers' Protective Association, of Dayton, O., have recently drawn up the following revised and detailed Tariff of Repair Prices for Business Vehicles, which should prove both interesting and instructive to carriage-builders in all other American cities and towns.

This price-list has evidently been prepared with great care, and it forms a valuable companion-piece to the "Revised Tariff of Repairs for Pleasure Vehicles" presented in our last number (page 340); while it probably applies to the needs of quite as large a proportion of our readers.

Mr. Chas. A. Bedell, of Dayton, President of the Association named, will please accept our thanks and the thanks of our readers for thus kindly permitting us to place this valuable list in the hands of the trade.

* * *

WOODWORK.

One set new rims, 7⁄8 in. to 1½ in., rounded	\$7 00
Ditto, square.....	6 00
One set new rims, 1¾ in. to 2¼ in.....	\$8.00 to 9 00
One new rim, " "	2.25 to 2 50
One set new rims, 2½ in. to 3 in.....	12 00
One new rim, " "	3 50
One set new rims, 3½ in. to 4 in.....	15 00
One new rim, " "	4 25
New spokes, 7⁄8 in. to 1½ in., each.....	25
Ditto, 1¾ in. to ¾ in., each.....	30 to 40

SPRING-WAGONS.

Plain bed without bottom sill, 2 seats.....	\$12 00
Ditto, with bottom sill, 2 seats.....	\$15 to 18 00
Plain bed, inside panel, 2 seats.....	18 to 20 00
Panel bed, 2 and 3 rails, 2 seats.....	18 to 25 00
Ditto, 4 rails, 2 seats.....	28 00
One seat.....	\$2.50 to 3 50
Axle-bed, complete.....	2.50 to 3 50
Perch, "	3.00 to 5 00
Head-block, "	2 50
One shaft, "	2 00
Two shafts, "	4 00
Single-tree, "	75
Cross-piece in shafts, complete.....	1 25
Spring-bars in job, complete.....	75 cts. to 1 50

LUMBER-WAGONS.

New pair shafts, old iron.....	\$4 50
One shaft, complete.....	2 00
Two shafts, "	4 00
Cross-bar in shafts, complete.....	1 25
Single-tree in shafts, "	75
New front hounds, "	3 50
New axle-bed, "	2 50
New sand-board, "	2 50
New bolster, "	3 00
New coupling pole, "	\$1.50 to 2 00
New hind hounds, "	3 50
New standards ironed, each.....	50 cts. to 75
New standards, plain, each.....	35

FARM-WAGONS.

Axle, complete.....	\$5 00
Tongue, complete.....	3 00
Front hounds, complete, per pair.....	7 00
Ditto, single one.....	3 75
Coupling pole, complete.....	1 75
Bolster, "	3 00
Sand board, "	3 00
Hind hounds, complete, per pair.....	5 00
" " single one.....	3 00
Doubletree, "	1 75
Singletree, "	65
Slider, "	50 cts. to 75

STONE-WAGONS.

Axle, complete.....	\$5.00 to \$6 00
Tongue, complete.....	3.00 to 3 50
Coupling pole, complete.....	1 75
Front hounds, complete, per pair.....	7 00
Ditto, single one.....	4 00
Bolster, complete.....	3 00
Sand board, complete.....	3 00
Hind hounds, complete, per pair.....	5 50
Ditto, single one.....	3 00
Stone bed, complete.....	10 00
Rub-blocks, per pair.....	40
Lock-bar, complete.....	1 75

DRAYS.

Axle, complete.....	\$5 00
Shafts, complete, each.....	\$5.00 to 7 00
Skids, " "	3.00 to 5 00
Board in bottom, complete.....	1 25
New bottom, " "	3 00
New head-piece, "	\$3.50 to 4 00
Cross pieces, " each.....	75

COAL-CARTS.

Axle, complete.....	\$5 00
Shafts, complete, per pair	7 00
Ditto, single one.....	3 25
Cross-piece in shafts, complete.....	1 25
Two cross-pieces in shafts, complete.....	2 00
New bed, complete.....	35 00
New bottom in bed, complete.....	2 50
New Key-stick.....	75

DIRT-CARTS.

Axle, complete.....	\$5 00
New bed, complete.....	15 00
Shafts, complete, per pair	6 00
Ditto, single one	3 00
New bottom in bed, complete.....	\$1.75 to 2 00

WHEEL-SHOP.

New wagon or cart wheels, old irons, 2 inch tread.....	\$8 50
Ditto, 3 inch tread.....	10 00
New hub and spokes, old irons, 2 in. tread.....	6 25
Ditto, 3 inch tread.....	6 50
New spokes and rims, old irons, 2 inch tread.....	6 00
Ditto, 3 inch tread.....	7 00
New spokes, old irons, 2 inch tread.....	4 00
Ditto, 3 inch tread.....	4 50

SMITH-SHOP.

One set new tires, 1¼ in. and under, cost of iron to be added.....	\$5 00
Ditto, 1½ in., cost of iron to be added.....	6 00
Ditto, 1⅝ to 1¾, cost of iron to be added.....	7 00
One set new tires, 2 to 2½ in., cost of iron to be added	8 00
Ditto, 3 to 3½, cost of iron to be added	9 00
Ditto, 4 inch, " "	10 00
Resetting tires, 1½ inches and under, per set.....	2 50
Ditto, 1⅝ in. to 1¾ in. per set.....	3 00
Ditto, 2 to 2½ in. per set.....	4 50
Ditto, 4 in. per set.....	5 50
Resetting single tires, 1½ in. and under.....	65
Ditto, 1⅝ to 1¾.....	75
Ditto, 2 to 2½.....	1 00
Ditto, 3 to 3½.....	1 25
Ditto, 4 inches.....	1 50
Resetting axles, 1½ in. and under, each.....	1 50
Ditto, 2 in., each.....	2 00
Ditto, 2¼ to 2½, each.....	3 00
One axle-arm and boxing wheels, 1½ to 1¾ in., cost of arm to be added..	3 00
One set axle-arms and boxing wheels, 1½ to 1¾ in., cost of arm to be added.....	\$9.00 to 10 00
One axle-arm and boxing wheels, 1⅞ to 2 in., cost of arm to be added...	4 00
One set axle-arms and boxing wheels, 1⅞ to 2 inches, cost of arm to be added.....	\$12.00 to 15 00
Resetting or welding spring, 1½ to 2 in.....	1 00
New main leaf in spring, 1½ to 2 in.....	2 00
Ditto, additional leaves, each.....	75 cts. to 1 00
New king-bolt.....	75
New bolts, ¼ in. and ⅝ inch.....	10
New bolts, ⅝ and ¾ inch.....	10 cts. to 20
New axle-clips, each.....	25
New fifth-wheel.....	\$2.50 to 3 50
Lock, on farm wagon.....	8.00 to 10 00
Lock, on spring wagon.....	8.00 to 10 00
Forging for hand and helper, per hour.....	50 to 75

In the carriage and wagon manufacturing business, Ohio leads all States in the Union, with an annual product of \$10,643,404. New-York comes second, and Illinois third.

REPRESENTATIVE CARRIAGE FACTORIES.

VIII. HEALEY, WILLIAMS & CO.'S NEW CARRIAGE FACTORY, NEW-YORK CITY.

(See front elevation and longitudinal section accompanying.)

A CORRESPONDENT, whose letter was published in our April number, makes a call for further diagrams of model carriage factories. Many such diagrams have appeared in former volumes of *The Hub*, but improvements are constantly being introduced in construction and fittings, and the new factory of Messrs. Healey, Williams & Co., on West Forty-third-st., New-York, the characteristic features of which are indicated in the accompanying pen sketches, commends itself as one of the most modern and convenient in its arrangements, and includes features which are likely to be quite new to many of our readers.

* * *



FIG. 1. HEALEY, WILLIAMS & CO.'S NEW CARRIAGE FACTORY, NEW-YORK CITY.—FRONT ELEVATION.

This is a representative city factory of large dimensions, in which special attention has been given to economizing ground-space, and gaining the maximum degree of light. We beg, however, to suggest that any of our readers who contemplate building a small factory, or one to be located in a village where ground space is of secondary consequence, will not for these reasons consider our description of this factory irrelevant to their needs; for the general principles involved in the construction of modern American carriage factories are substantially the same in all cases, whether the factory be large or small, metropolitan or suburban, including the following as leading requisites, namely: (1) arrangement of the different mechanical departments in such a manner that there shall be economy of time and labor in passing carriages through the works; (2) suitable stairways and elevators; (3) ample provisions against fire; (4) the admission of all possible daylight, and its introduction at the points where it is most needed, especially over the anvils of the blacksmiths, whose work demands good light quite as much as that of other mechanics, but whose wants in this respect are too seldom respected; (5) the most perfect possible arrangement for accommodating the painters and varnishers, including a location exempt from dust, jar, smoke and interruption by callers, suitable light, heat and ventilation, and provisions to exclude dust and flies; and (6) an ample and attractive show-room, in which fine vehicles, as an article of luxury, may be displayed to the best possible advantage.

All the above conditions have evidently been duly weighed and attended to by the designers of this six-story brick building, completed in April last, which was planned and supervised in every detail by Mr. Healey, of the firm, and which includes the latest and most approved machinery and labor-saving appliances of every kind. The consideration of the details of such a city factory cannot but prove more instructive than that of numerous smaller or suburban shops, as it naturally embraces all the requisites of the latter, besides many others of less or greater consequence, which depend upon the limitations of confined area and interruption of light caused by adjacent buildings.

The plot of ground which the builders had at their disposal in this instance, measured 100 feet front by 115 feet 5 inches deep, surrounded on three sides by buildings. It was requisite, therefore, to depend for light on windows front and rear; and, owing to the high price of real estate and the growing requisites of the business, it was deemed advisable to occupy the entire ground space. The first point to which we desire to call attention is the admirable manner in which the space was utilized without prejudice to the question of light.

The building is divided at the center by a heavy fire-wall, with two twelve-foot openings on each floor, fitted with heavy iron doors. By closing these doors complete separation of the two halves of the building may be effected, making each as distinct as if it were under a separate roof; and the proprietors have made it an imperative rule that all these fire-doors shall be closed every night. The engine, boilers, elevator and all power machinery are confined to the Eastern division of the building, thus largely reducing the danger of loss in case of fire.

A steam elevator, 14 × 7¾ feet, with a lifting capacity of 5,000 lbs. runs from the basement to the roof. An attachment is added so that it can be worked by hand in case of accident or when the steam is off. This attachment was devised by Mr. Healey, and is very simple, consisting of a spurred wheel affixed to the end of the direct working shaft and operated by an endless chain belt and double cranks. It can be attached or detached in a very few minutes, and is both simple and effective. So far as we are aware, this is the first arrangement of the kind that has ever been used in connection with a power elevator, and it will doubtless prove very handy in emergencies.

There are two stairways, one of which runs up the face of the elevator shaft, and thus economizes floor space; the second is located against the west wall. These two stairways, in addition to two iron fire-escapes on the rear exterior wall, insure ample means of egress in case of fire.

A brick chute, built in the central wall of the building, supplemented

an iron door on each floor, furnishes convenient means of disposing of shavings, rubbish and sweepings, which are thus easily conveyed to the basement, and each day fed to the boilers.

The provisions against fire include a large iron water-tank, located just under the roof, which is supplied by a force-pump from the engine-room, and leads water to every story, together with the Harden hand-grenades (glass balls filled with chemicals), which are placed within convenient reach of the workmen, and numerous iron water-buckets. Running water is found on every floor, and water-closets and urinals on each alternate floor.

We will now briefly describe each separate story, together with such special machinery and labor-saving devices as seem most likely to interest our readers.

BASEMENT.

The basement is 13 feet in height, with excellent light throughout, introduced from bulkhead windows in front, a glass dome at the rear,

The smith-shop will accommodate 18 forges, which are blown by steam. Those now in use are of iron, and made after a special pattern designed by Mr. Williams, of the firm. The distinguishing characteristics of the design, are as follows: each one is complete in itself, including the fire-bed, coal and water boxes and smoke bonnet, and it is portable. Special attention was paid to the flues, which are 12×14 inches, carefully lined up on the inside, so that a perfect draught is obtained, and little or no smoke enters the room.

A gas tire-heater is to be used. A lead bath had been thought of for this purpose, but, after careful investigation, the idea was relinquished on the ground of expense in daily heating it. With a large and uniform number of tires to be heated daily, the firm think the lead bath would prove both effective and economical; but the gas heater has the special advantage of being always ready for immediate use, while all expense attending that use ceases the moment the work is completed.

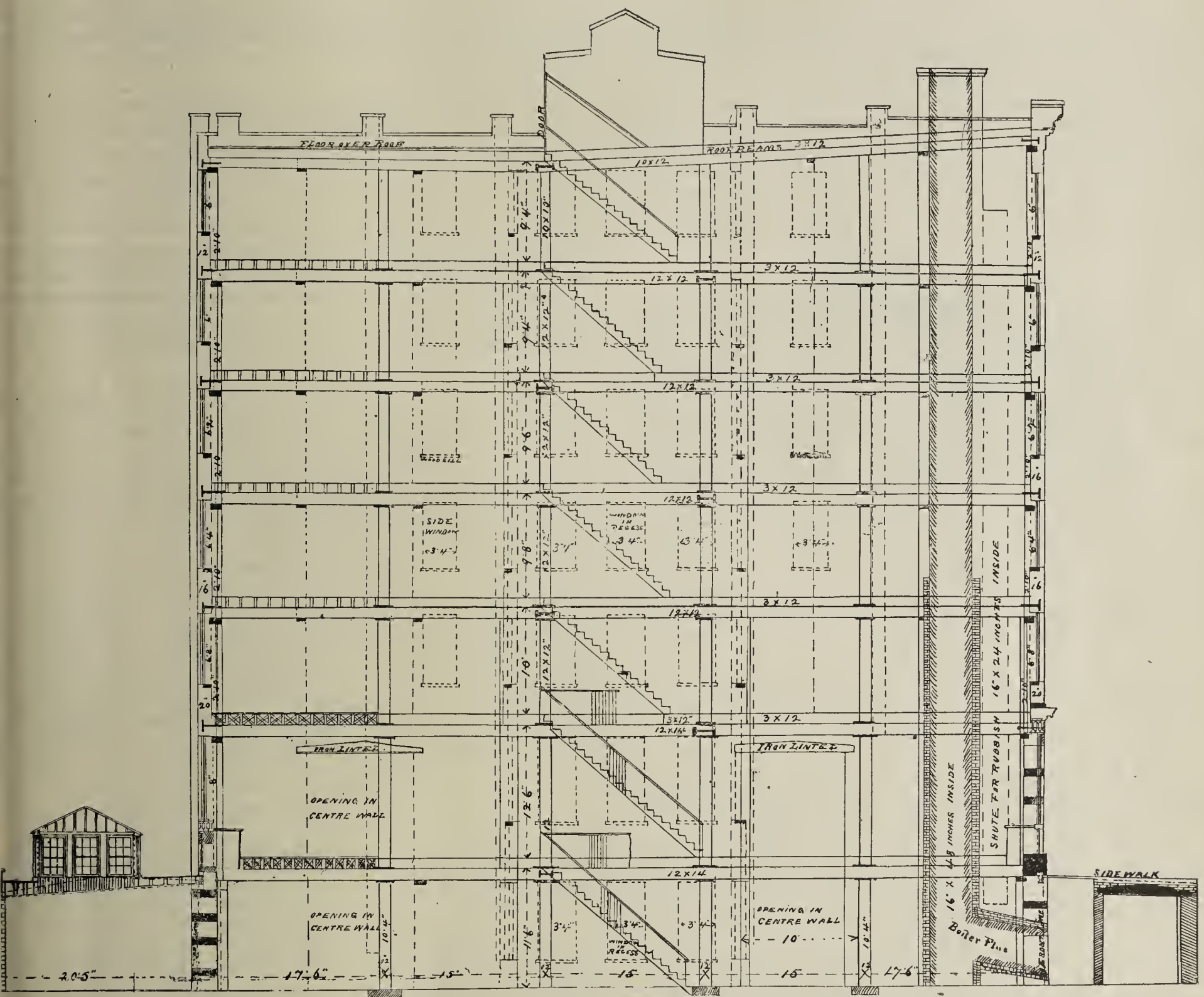


FIG. 2. HEALEY, WILLIAMS & CO.'S NEW CARRIAGE FACTORY, NEW-YORK CITY.—SECTIONAL VIEW.

and light-shafts at the sides. Reference to the front elevation, Fig. 1, will show the manner in which light is introduced from above, all along the front of the basement; while Fig. 2 shows that at the rear, where the iron-work is forged, direct daylight from a glass dome, 20×90 feet, is introduced to every blacksmith's forge and anvil and every fitter's bench.

The floors of the basement are made perfectly water-tight, by 5 inches of concrete, covered by 2 inches of Portland cement; while steam coils insure warmth and dryness, and two shafts, containing six windows in each floor, furnish further light and ventilation from the two sides.

Two steel boilers, of 50 horse-power each, together with the coal and oil vaults, are all located outside the building and under the sidewalk, thus economizing ground space in the basement, and largely avoiding dust and danger from fire.

The engine is a 50 horse-power prize engine, bought at the last American Institute Fair, made by the Lambertville Engine and Machine Works, of Lambertville, N. J. It is simple, compact, supplied with a patent automatic cut-off, and can be worked from 1 to 50 horse-power as may be desired, thus economizing steam. This engine is located under the driveway, in close proximity to the boilers.

A clever device for saving labor in drilling tires, forms a noteworthy feature of this department. The wheel is suspended, and made to revolve in the course of the operation of drilling, thus avoiding the laborious operation of lifting the wheel on and off the supporting arms, as is necessary with other drills. This was devised by Mr. Healey. The above, together with other power drills, emery wheels, lathes, etc., constitute the machinery of the smith-shop.

FIRST OR GROUND FLOOR.

The ground floor is mainly devoted to the office, stock-room and carriage wareroom. All the front windows on this floor are of double-pane plate glass, as shown in Fig. 1.

Near the entrance is a Buffalo Scale Co. scale, with a capacity of five tons, which is utilized for weighing not only the carriages constructed, but all coal and materials bought by weight. Adjoining this is the washing-platform, which is made with double flooring, seamed and calked. All the floors in the building are of Georgia pine, laid transversely, with tarred paper between the two.

The stock-room, $12\frac{1}{2} \times 60$ feet, is conveniently fitted up with shelving

and tables, and in this is kept all the small stock. Speaking tubes connect the office with each mechanical department in the works, and there is also telephone connection by private wire with the firm's repository, at Nos. 1476 and 1478 Broadway, near the corner of 42d-street.

The wareroom occupies one-half of this floor. It is finished with Georgia pine, oiled and shellaced, giving a plain but cleanly appearance, and one appropriate to the business. The shades are of Holland, sage-colored, and suspended on automatic spring rollers.

The carriage entrance, shown at about the center of Fig. 1, is provided with a single door, 11 feet wide by 12 feet high, and weighing 900 lbs., which is suspended by balance weights on pulleys; and it can be raised as easily as are ordinary windows, and on the same principle. This is a great convenience in the case of so large an opening, besides affording economy of space; and it is the first instance, we believe, in which such an arrangement has been applied to the door of a carriage factory.

SECOND FLOOR.

The second floor is divided into a trimming and a finishing department, and includes few noteworthy features beyond convenient arrangement of the benches and the usual working appliances.

Carriages for the repair department are unhung and stripped on this second floor, which contains one hundred and twenty separate compartments in which are placed the cushions, carpets and movable articles belonging to each vehicle, and numbered according to that corresponding with the vehicle to which they belong. This system not only economizes time and prevents mistakes, but is an actual necessity in a business of this kind and size, where from three to four hundred second-hand vehicles are unhung each year.

THIRD FLOOR.

The body, gear and wheel-makers occupy the third floor, which is amply supplied with convenient machinery, including a band-saw, jointer, splitting-saw, and several small machines for shaping and dressing. On this floor, also, is the drafting room, which is 20 X 25 feet, and provided with double-faced swinging blackboards, shelving, etc.

This third floor also contains an iron hot-box for drying joints before gluing, a steam glue-pot, and a gas panel-bender.

FOURTH FLOOR.

The fourth floor is mainly devoted to seasoning and storing timber and working the same, and contains a capacious steam dry-room, a lub-boxing machine, the largest cylinder planer yet built, and a large stock of timber in various stages of seasoning.

The dry-room, 14 X 20 feet, is furnished with the latest conveniences for seasoning timber, including the coil system of steam heating, a cold-air pipe near the floor, and a 6-inch exit pipe.

FIFTH FLOOR.

The fifth floor is mainly devoted to the painting of gears, and also contains the color-mixing room and stock-room for colors.

SIXTH FLOOR.

This upper floor is entirely devoted to the painting and finishing of bodies, and is particularly noteworthy for its convenient arrangement and perfection of details.

The body varnish-room, 25 feet square, is partitioned off from the body paint-room, and has six windows, four of which have a northern exposure and two an easterly exposure, affording excellent light. The gear varnish-room is of similar size, and has a northern and western exposure.

Both these varnish-rooms are provided with fibrous ventilating screens, furnished by the Protective Ventilator Co., of this city; and rubber weather-strips are introduced around the windows and doors to prevent dust and draughts of air.

The floors of both are laid with Wootton's concrete, and there are drains at the corners connecting with the main sewer, to prevent the accumulation of water.

The walls and ceiling are plastered, and have a hard finish. There are no cupboards in either room, nor in fact anything to accumulate dirt or dust. The clothing of the workmen is contained in closets outside.

Leading off from the body varnish-room is a dark room, 12 X 20 feet. Bodies are passed into the former direct from the hands of the rubber; and, when finished, these are immediately rolled into the dark room to dry. The latter has rolling doors leading into the main floor, and from this dark room the varnished work passes on to the finishing-room and to a lifting arrangement designed for the application of wheels, which is an ingenious contrivance, by which one man can easily elevate any carriage body, while the wheels are brought from the opposite room and placed under the body.

THE ROOF.

A new and novel feature of this factory, showing further attention to economy of space, is the roof, which is partly floored over, and directly reached by the elevator, so that the largest carriage can be raised to the

roof and the same utilized for drying purposes, especially in the painting processes.

* * *

The history of the business concern occupying this model factory well deserves extended notice; but in this connection we will only say that the house was established in 1849 by Mr. William Williams, who is probably the oldest active carriage-builder now doing business in New-York City. He possesses a gold medal which was awarded to his work by the American Institute Fair, of this city, as early as 1850, and he has held an honored place among New-York's leading carriage-builders ever since that time. The specialty of the house is medium and heavy work of the finest grades, mostly to order, including chiefly gentlemen's driving phaetons, victorias, cabriolets, coupés, broughams, landaus, coaches, etc. Their repair business is also large, and they enjoy the reputation of having no superiors in this line of work. For convenience and economy, their new work and jobbing are divided into two distinct departments, with different corps of workmen, in all shops excepting the painting.

Their repository on Broadway is one of the most attractive in this country. In outward appearance it resembles a bank. It is 60 feet front by 110 feet deep, four stories high, and accommodates about one hundred and forty vehicles. The interior finish is plain and neat, the walls being painted in neutral tints, such as pearl grays, the object being to avoid reflection of colors on the varnished surfaces. The same idea is carried to the ceilings and the window shades, which are also in gray. Utility, rather than show, has evidently been the aim of the firm in both factory and repository. The repository office bears the same marks of simplicity in its finish, but includes all the best modern appointments.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING JULY, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between July 1st and July 22d in the current year:

JULY 1st, 1884.

Vehicle Axle.....	{ J. F. Williams and A. C. Taylor,
	Malvern, Ark.
Carriage Wheel.....	W. D. Orcutt.....
	Boston, Mass.
Horse-detaching Device.....	J. Buesch.....
	Allentown, Pa.
Vehicle Hub Cap.....	J. G. Eberhard.....
	Akron, O.
Thill-coupling.....	J. J. Aston.....
	Brooklyn, N. Y.
Vehicle Spring.....	G. W. Stowe.....
	New-Haven, Conn.
Vehicle Wheel.....	A. J. and J. M. Smith....
	Milner, Ala.
Wagon Jack.....	W. H. Gray.....
	Neapolis, O.
Heavy Wagon Wheel.....	W. D. Orcutt.....
	Boston, Mass.

JULY 8th, 1884.

Vehicle Axle.....	{ M. J. Klopp and J. O. Therien,
	Minneapolis, Minn.
Wagon End-gate.....	G. L. Slater, ¹
	Buchan, Mich.
Thill-coupling.....	H. H. Stevens.....
	Colorado Springs, Col.
Vehicle Head-block.....	S. H. Steward.....
	New-Egypt, N. J.
Vehicle Spring.....	W. H. Corlett.....
	Cleveland, O.
" ".....	E. J. Hess, ²
	Cincinnati, O.
" ".....	G. B. Malette.....
	Watkins, N. Y.
Two-wheeled Vehicle.....	F. L. Parry.....
	Bridgeport, Conn.
Wagon Bolster Spring.....	Z. A. Beuell.....
	Fredonia, Kansas.
Wagon Brake Lever.....	A. Dougherty.....
	Vallonia, Ind.
Wagon Running-gear.....	H. W. Whitney.....
	Monroe, Wis.

JULY 15th, 1884.

Cap for Carriage Axle.....	J. M. Schorb, Jr., ³
	Plainfield, N. J.
Device for fastening Carriage	{ W. Brown.....
Curtains.....	Newburyport, Mass.
Carriage Top.....	R. H. Lewis.....
	Brampton, Ont.
Manufacture of Carriage Tops..	T. Hawley, ⁴
	Fairfield, Conn.
Platform Spring for Carriages..	R. Blunt.....
	Maquoketa, Ia.
Road Cart.....	A. E. Carter.....
	Hudson, Mich.
Horse Detacher.....	J. M. Kirby, ⁵
	Pacolet, S. C.
Vehicle Running-gear.....	{ J. J. Delotter and J. H. Snyder,
	Goshen, Ind.
Vehicle Spring.....	T. B. Stone.....
" ".....	M. A. Winget, ⁶
	Columbus, O.
Vehicle Top-prop.....	F. Schreidt, ⁷
	Mansfield, O.
Wagon Brake.....	G. Seibert, ⁸
	Ashley, Ill.
Spring Wagon.....	W. R. Isbel....
	Yorkshire Center, N. Y.
Wagon Spring-seat.....	J. Hodgess.....
	Loyalton, Cal.

JULY 22d, 1884.

Carriage-pole.....	{ S. Wells and D. B. Newton
	Mount Valley, Kansas.
Thill-coupling.....	B. F. Parsons.....
	Litchfield, Pa.
Hub.....	S. Mitchell.....
	Lima, N. Y.
Vehicle Brake.....	H. M. & J. M. Crippen....
	Big Run, O.

Vehicle Running-gear.....	J. B. Howell.....	Allentown, N. J.
Vehicle Seat.....	F. R. Alderman, ⁹	Detroit, Mich.
Vehicle Spring.....	J. G. Gay.....	Ottawa, Ill.
".....	J. W. Henney.....	Freeport, Ill.
Wagon Brake.....	T. J. Sparks, ¹⁰	Oroville, Cal.
Wagon Jack.....	L. Barrette.....	Crookston, Minn.

- ¹ Assignor of one-half to A. J. Carothers, same place.
² " of one-half to E. B. Hess, same place.
³ " to C. L. Schorb, same place.
⁴ " of one-half to E. W. Harral, same place.
⁵ " of one-half to R. T. Sloan, same place.
⁶ " to F. R. Winget, same place.
⁷ " to Schreidt & Miller Co., same place.
⁸ " of one-half to M. W. Morgan, same place.
⁹ " to O. F. Hall, same place.
¹⁰ " of one-half to R. McDonald, same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.

DINNER-HOUR.

"A little nonsense, now and then,
Is relished by the wisest men."

AN APOLOGY.

We feel that we owe our subscribers an apology for deferring the attractive Gray-Parker drawing intended for this page, to make room for the following foreign and unprofitable matter; but it is only as a "Dinner-Hour" article that we care to present this at all, and we can't spare room for both cut and article. Mr. Gray-Parker shall address you next month.

OUR SIAMESE-TWIN CONTEMPORARIES.

In our July number we addressed a few remarks to Mr. J. C. Cooper, publisher of one of our London contemporaries, under the title: "Tubs Without Bottoms," and supplied him with some statistics which he had shown himself sadly in need of. We have since been amused to discover that there is some sort of a trans-Atlantic Siamese-twin bond of connection between Cooper's journal in London and the *Carriage Monthly* in Philadelphia, so that we have only to tickle the ear of one to make the other laugh, or apply pepper to the nose of one if we would set the other sneezing.

In this case the *Carriage Monthly* has done the sneezing, the nature of which we will now briefly explain.

Cooper, please understand, loaded his biggest gun clean up to the muzzle with resonant agricultural products; and, through his May number, discharged peas, beans and pumpkin-seeds in a shower in the direction of *The Hub* office. We were somewhat surprised by the report; but, finding that we were neither injured nor hit, we picked up such as fell nearest, and promptly returned them to him through our July issue, with the notice "Not called for."

Now it seems that, meanwhile, the *Carriage Monthly* had been an interested spectator; and, feeling grieved to see its friend Cooper so discomforted, it has hastened to his rescue, and, through its August issue, showered us again with vegetable matter.

Most of its pellets are manifestly harmless, and the discharge of twenty or more at one broadside only weakens the effect that any single one might possibly have possessed if accurately aimed in the eye. There are only six which seem worthy of notice, and we propose to concentrate our powder on these.

* * *

The first point at issue is thus expressed by the Philadelphia branch of the Siamese-twin combination:

I.

"Did not the *Carriage Monthly* publish the first perspective drawing, and was not *The Hub's* coupélet, published June 15, 1872, copied in principle?"—*Carriage Monthly*, page 136.

This interrogatory is so vaguely expressed that it is manifestly impossible to answer it understandingly as it stands. First perspective drawing of what? First, as compared with what? We are compelled to fill out the gaps; and, judging from the context, we think we do not misinterpret the true meaning of our friend's inquiry when we restate the first part of his question thus:

Did not the *Carriage Monthly* publish in its columns a perspective drawing of a carriage or other vehicle, before ever *The Hub* published any perspective drawing of a carriage or other vehicle?

It is next requisite to know the date when the *Carriage Monthly* published its first such drawing. This fact it states as follows:

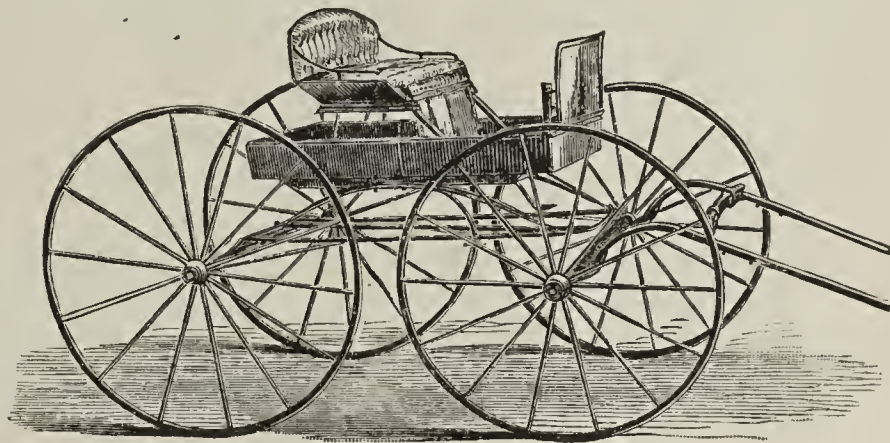
"When did the *Carriage Monthly* make public its first perspective drawing? We published a basket phaeton on page 180, September number, 1871; one two-passenger phaeton with rumble, on page 2, October issue, 1871; and a Portland

cutter on page 42, December number, 1871, all drawn in perspective."—*Carriage Monthly*, page 136.

We find the first of the above facts to be as stated; and this gives us a starting-point. We credit the *Carriage Monthly* with having published a reproduction of a French perspective drawing of a Basket Phaeton in September, 1871.

If, now, *The Hub* wants to set up any claim to priority in this matter, it must ante-date September, 1871. Can we do it? We couldn't be sure of this when we had our July talk with Mr. Cooper, because we no longer possess files of *The Hub* previous to 1872; but we have since obtained access to the full set belonging to the library of the Technical School for Carriage Draftsmen and Mechanics, in this city, an examination of which shows that *The Hub* contained three perspective drawings of vehicles during the years 1870 and 1871, namely: "The Ivers Buggy," March, 1870, page 3; "The Girard Gig," September, 1870; and "A Primitive Sleigh," January, 1871.

Here, then, are three perspective drawings to be found in *The Hub*, which ante-date the claim set forth by the *Carriage Monthly*. That of "The Ivers Buggy," published in March, 1870, or a year and a half before the date of their first perspective carriage drawing, would to-day do no discredit to any trade journal, and we do not know how we can better silence our captious critic's pretensions to priority of invention in perspective work, than to present the drawing in black and white. Here is a moderately successful reproduction of the original engraving, made by the photo-engraving process:



If the *Carriage Monthly* can find any means of ante-dating the above Ivers perspective, we shall be happy to witness the attempt.

We now come to the closing part of the *Carriage Monthly's* first inquiry as above stated, namely:

"Was not *The Hub's* Coupélet, published June 15, 1872, copied in principle?"—*Carriage Monthly*, page 136.

Again we find the question so vague as to be almost incomprehensible. Copied in principle from what? From the *Carriage Monthly*? If that is the writer's meaning, we answer most emphatically No! According to its own statement, the *Carriage Monthly* had published only three perspective drawings of vehicles previous to the appearance of our Coupélet drawing, two of which we find to be reproductions from French drawings of open basket phaetons, and one sleigh drawing; and these contained positively no new principle that was capable of being copied by anybody.

If the writer means merely to ask, for general information, whether perspective drawings of vehicles had not appeared in carriage trade journals before either a *Carriage Monthly* or *Hub* had ever been heard of, we answer with equal emphasis, Yes! Why, we find excellent perspective drawings of a child's carriage and three Gould sleighs in one number of Stratton's *New-York Coach-Makers' Magazine* as early as November, 1858; and another of a Kimball & Clement Sleigh, in September, 1859. Going back still further, we find five perspective drawings of carriages in Vol. II of Saladee's *Coach-Makers' Monthly Magazine*, all published in 1856; and there were very likely still earlier ones in Vol. I of the same magazine, which we have not at hand.

II.

The second point at issue is so clumsily stated as to seem like a falsehood at first reading. Here is what it says:

"We never borrowed [from *The Hub*] a single cut nor asked the loan of one from them."—*Carriage Monthly*, page 136.

This assertion would certainly seem to imply that the *Carriage Monthly* had never published in its columns any cut loaned to it by *The Hub*; but such is not the fact, as is clearly though reluctantly admitted further on, when it adds:

"In the exchange of cuts, it was only done at the earnest solicitation of the editor of *The Hub*, who personally called at our office, stating that, owing to the large number of carriages exhibited [Centennial Exposition] it would be almost impossible for each to give near the whole number; whereas, by exchanging cuts, each could give a larger number of drawings each month. To this proposition we acceded, and the only cuts we have published, received from *The Hub*, we have taken only to oblige the editor, in exchange for like number of cuts in the *Monthly*."—*Carriage Monthly*, page 136.

The idea of our Philadelphia contemporary having ever been influenced to take and publish *Hub* cuts "only to oblige the editor" of our maga-

zine, is so preposterously out of character as to be really funny. The writer himself must have laughed in his sleeve as he winked at the words. His statement sufficiently indicates the nature of the transaction referred to, which was first suggested by us, and promptly approved by Mr. Hendry, then editor of the *Carriage Monthly*, and continued with mutual profit and satisfaction for several months. It was perfectly open and above-board, and consisted merely in the exchange of engravings of Centennial exhibits, for the purpose of avoiding duplication of work; and it proved advantageous to both parties. In the course of such mutual borrowings and loanings, the *Carriage Monthly* came into possession of one of our Muller perspective cuts, that of the "Brewster Windsor Wagon," which was published in the June *Hub*, 1876, and reprinted in the July *Monthly*. At that time, such a perspective was a decided novelty in the *Carriage Monthly*, which, according to its own statement (page 136), had published only three before that date, and those five years previously; but perspectives were already quite familiar to patrons of *The Hub*, as we had presented twenty-one previous to July 1, 1876. It consequently remains an undisputed fact that this cut of the "Brewster Windsor Wagon," borrowed from *The Hub*, was the first noteworthy perspective carriage drawing that the *Carriage Monthly* presented to its subscribers.

III.

The writer next entangles himself in a snarl of his own making. He correctly quotes *The Hub* as saying:

"We began using them [perspectives] in 1872, when our draftsman, Mr. Muller, was engaged in developing his so-called compromise system of perspective; and we have continued to use them in increasing numbers ever since."

This statement of ours would seem clear enough, but our critic blindly dodges the point and replies:

"The introductory article on perspective drawings by Mr. Muller was commenced in the May number [of *The Hub*], 1880, and not in 1872,—an error, however, of only eight years."—*Carriage Monthly*, page 136.

It is true that Mr. Muller's elaborate treatise on perspective drafting by his "compromise system" appeared in print some time after he had developed the system and presented many specimens of his new method of work in *The Hub*. But what would the *Carriage Monthly* have,—explanatory treatise first, and experimental work afterward?

IV.

The next statement is equally involved and pointless:

"The perspective drawings were gradually adopted by *The Hub* one year after their adoption in the *Carriage Monthly*. The latter commenced and adopted the perspective designs in January number of 1879, as our columns abundantly show."—*Carriage Monthly*, page 136.

As *The Hub* began its regular presentation of perspectives in 1872 (see proof in our July number, page 266), and as we have never claimed to have adopted them exclusively, we fail to find any point in the above assertions, further than a complete and obvious misrepresentation of the facts.

V.

The *Carriage Monthly* next proceeds to prove that it has adopted perspective carriage drawings exclusively, and asserts that, since January, 1879, it has published only 23 side-elevations of carriages. We haven't counted, but we willingly admit the claim, if the *Carriage Monthly* has any pride in it; but its object in thus limiting its field of active work to one method appears to be unexplainable excepting on the theory that perspectives prove profitable in the job-printing department. *The Hub*, on the contrary, disclaims any intention of confining its draftsmen to these cheap substitutes for complete working drawings; and the *Carriage Monthly* is at liberty to publish this admission of ours in whatever form it sees fit.

VI.

After the dreary and unprofitable column-and-a-half of vague charges above commented upon, we now come to an amusing development, evidently prompted by a stricken conscience on the part of somebody.

Reference is next made to several perspective drawings which appeared in *The Hub* in 1876, accompanied by letters and mechanical descriptions signed by Mr. Chas. Heergeist. Here is what the *Carriage Monthly* has to say about these:

"The letter referred to above had no reference to the two perspective jobs in question, but to two side-view drawings, or plates Nos. 82 and 102, and published in *The Hub* on pages 320 and 392 in the January and March numbers, 1876. Mr. Heergeist never made the two perspective drawings mentioned, nor did he ever so claim. The first perspective drawing mentioned was drawn by R. McComus, of Cincinnati, Ohio, and the second one also by Mr. McComus, after becoming the special draftsman for Messrs. Crane, Breed & Co. The firm furnished *The Hub* with electrotypes of the same. The fact that Mr. Heergeist's letter referred to tracings, and so stated, and that these perspective jobs were sent as electrotypes, by the firm, shows clearly the misinterpretation desired to be placed on this letter, and consequent deception practiced on the public as well as unfairness to Mr. Heergeist and the *Monthly*."—*Carriage Monthly*, page 137.

If the above explanation is satisfactory to the *Carriage Monthly* and to Messrs. Heergeist and McComus, we certainly find no reason to complain. Five engravings are involved in the case, two side-views and three perspectives. The two side-views were reproduced by us from

tracings furnished by Mr. Heergeist; and the engravings from which the three perspectives were printed were furnished us by the firm named. All this is quite true. It may also be equally true that Mr. Heergeist did not make the three perspective drawings, but we believed that he did, and we duly credited them to him at the time, saying, for instance, in respect to the first two (see Vol. XVII, page 320): "The two drawings accompanying, giving a side and perspective view, are so complete that no detailed description will be required; but Mr. Heergeist, the draftsman of both, to whom we are much indebted for kindness in this connection, has communicated the following facts," etc.

We made the above announcement in evident good faith, and followed with another side-view and perspective, in the next number; and with still another perspective in May 1, 1876, the title of the last-named being accompanied by the words: "Drawn by Charles Heergeist, of Cincinnati, O.," and by a letter containing a mechanical description and table of dimensions signed by his full name.

We believed that Charles Heergeist made all five of those drawings. If now, after a silence of eight years, he feels called upon to remove that impression and to give due credit to the fellow workman whom he mentions (but who is unknown to us), we are certainly glad to afford him the opportunity. But under these circumstances, the *Carriage Monthly's* use of the expressions "misinterpretation," "deception practiced" and "unfairness to Mr. Heergeist," are obviously misapplied.

* * *

Next follow further echoes of the claim that the *Carriage Monthly* has published a great many perspectives, which we admit; and some very ungracious hints that the deceased Mr. Muller and our present Associate Editor, Mr. Albert Kehrl, derived most, if not all, of their information about perspective drawing from the *Carriage Monthly* office. We give the writer credit for having temporary gleams of intelligence; and, in such sane intervals, he ought to be ashamed of himself for making personal allusions of this kind. We think we have already furnished ample proof that the *Carriage Monthly* did not originate perspective carriage drawings; that it did not publish the first one; and that, according to its own testimony, it did not adopt them until after they had become a regular feature of *The Hub*. All references to the deceased Mr. Muller or to our present Associate Editor are consequently as inappropriate as they are impertinent.

We find still unanswered a third column of similar rambling charges, but nearly all of these are based upon equally ignorant or willful distortion of the truth. The writer of the *Carriage Monthly's* editorial, whoever he may be, proves himself to be quite as careless of his facts as we have already shown Mr. Cooper to be; but, then, this only emphasizes the force of our opening remark, namely: that a bond of twinship unites them, and whether Cooper's journal is the Foreign Edition of the *Monthly*, or the *Monthly* an American Edition of our London contemporary, is a matter of little interest to the public or to ourselves.



NEW-YORK CITY.

HOME AGAIN.—*The Hub's* stenographer, M. M. Bartlett, returned by the steamer *Bothnia*, on Aug. 13th, from a five-weeks' trip to England and France, 20 days of which were spent on the water.

POLITICAL.—Mr. William H. Barnum's health will not permit him to hold the reins over his celebrated mule team, but the managers of the show are said to have entire confidence in their new charioteer, Senator Gorman.—*New-York Tribune*, Aug. 6th.

ACCURATE COMMERCIAL AND FINANCIAL NEWS ought to prove valuable to members of the carriage and accessory trades, and we know of no better means of gaining such information than to carefully study *Bradstreet's*, a weekly paper published by The Bradstreet Company, at No. 283 Broadway, New-York. Its facts are reliable, and they are served up in readable shape.

A DENIAL.—"It is rumored that Mr. Williams, of Healey, Williams & Co., a former partner of Mr. Loos, has withdrawn from Healey, Williams & Co., and united with Mr. Loos, under the old firm name of Loos & Williams, at the old stand 46th-street, near Broadway."—August *Carriage Monthly*. We are authorized and requested to state that this rumor has no foundation whatever.

ERRATA.—An obvious error was made in naming, on our last month's colored plate, the spring used in its suspension, which is not the one that the Longstreth & Ayer Mfg. Co. have so prominently advertised of late, but another one patented by them under dates of Dec. 17, 1878, and Feb. 15, 1881. However, our mechanical description of its characteristics was correctly given on pages 322 and 323, so that we have the satisfaction of knowing that no reader could have been misled by the error of title.

"HOW TO TELL THE AGE OF A HORSE" is a handy little pocket manual, published by M. T. Richardson, of 7 Warren-st., New-York, which ought to fill the needs of those interested in the subject. It is profusely and pertinently illustrated.

THE MOSIER NOONDAY CLASS, composed of young men employed in the smith-shop of Messrs. Brewster & Co. in this city, gave public exhibitions each noon-hour during the week closing Friday, Aug. 22d, commendable alike to scholars and teacher.

THE B. & CO. V. A.—The annual meeting of the Brewster & Co. Veteran Association, now numbering 31 members, was held in this city on Aug. 8th, when the old board of officers was re-elected, including Messrs. J. L. H. Mosier, President; J. F. Scanlon, Vice-President; and Jas. Haggerty, Secretary and Treasurer.

"PLAIN TALK WITH PRACTICAL PAINTERS" is the title of an instructive hand-book which Messrs. John W. Masury & Son, corner Fulton and Nassau-sts., New-York, have just issued for gratuitous distribution, and which all the painters among our readers would do well to apply for. A review of it will appear in our next number.

A CARD FROM DR. DIO LEWIS, dated Bible House, New-York, Aug. 12th, states that, after a struggle, he has at last secured possession of his magazine, *Dio Lewis's Monthly*; and he requests all who have sent money for his publications and received nothing in return, to communicate the facts to him, when the wrong shall promptly be righted. We have faith in the Doctor, as an energetic and amiable public benefactor; and he has our best wishes.

PICNIC.—The sixteenth annual festival and re-union of the employes of Brewster & Co., of Broome-street, New-York, was held at Sulzer's Harlem-River Park, 127th-street and 2d-avenue, on Saturday, Aug. 23d. The occasion was unusually interesting and enjoyable; including music and dancing, athletic sports, and a shooting tournament. The committee of management included Messrs. Thos. McLoughlin, President; John Nickels, Vice-President; Francis J. Fiesel, Secretary and Treasurer; Jas. Sullivan, Starter; and Jas. Haggerty, Referee.

A COURTEOUS ACKNOWLEDGEMENT FROM SENATOR BLAIR.—Hon. H. W. Blair, one of the United States Senators composing the committee of three who recently performed such valuable service in gathering evidence concerning the condition of our American working classes, acknowledges receipt of a copy of our pamphlet report of Ex-President Britton's testimony, in the following complimentary terms. He says: "Your letter, and also the reprint of the testimony of Mr. Britton, are received. Mr. Britton's testimony is filled with the most useful matter, and you do a great public service in thus giving it wide circulation."

IN TROUBLE.—*Bradstreet's*, during the past thirty days, has reported the following carriage-makers and others in trouble: Jones & Clough, wagon-makers, Oakland, Cal., attached. Mortimer Allison, wagons, Canisteo, N. Y., assigned; he took the business of Baker & Vandelinder last fall, who were embarrassed, to close it up; he is one of the partners in the Bank of Canisteo. John Kelly, Merrimacport, Mass., carriage-maker, liabilities \$2,000, assets same. Amos G. Hull, Binghamton, N. Y., spoke-maker, assigned to John B. Bowen, giving preferences amounting to \$6,300. Guthrie & Clifton, Buffalo, N. Y., manufacturers axles, assigned to Walter T. Wilson. S. A. Martine & Co., New-York City, wholesale carriage-cloths, assigned, giving preferences aggregating \$75,756.97; within the present year they have been estimated in the trade as being worth \$150,000. Townsend, Wilson, & Hubbard, Philadelphia, Pa., manufacturers carriage-bolts, failed, compromised at 50 cents. Gottlieb Burge, Kittanning, Pa., coach-maker, assigned to Joel Crawford. James Belch, Napanee, Ont., carriage-maker, assigned. Veinot Brothers, Bridgewater, Nova Scotia, carriages, assigned in trust. E. De Pue, Oakland, Cal., wagon-maker, attached. John Kempel, St. Louis, Mo., carriage manufacturer, assigned. Jules Lajeunesse, Montreal, Can., carriage-maker, assigned in trust.

MR. EDWARD ATKINSON ON THE BUSINESS SITUATION.—*Bradstreet's* of Aug. 16th, contains a condensed report of the elaborate and highly instructive review of the present business situation, contributed by that thoughtful and experienced observer, Mr. Edward Atkinson, of Boston, Mass., to the *Manufacturers' Gazette*, which every member of the carriage and accessory trades would do well to obtain and study thoughtfully. We quote below an introductory paragraph: "The facts which caused the panic of 1873 were just as apparent in 1870 as they were during its action, but its exact date could not be foreseen. The long period of necessary depression, while the depreciation of the currency was being corrected, could be as clearly apprehended before 1873 as it could be during its continuance until 1879. The 'boom' of 1880 was an obvious necessity, and was easily predicted in 1878 and '79. The commercial 'paralysis' of 1883, and the railway panic ensuing in 1884, were both apparent and were foretold in the winter of 1881, although no date could be established in advance. With equal certainty the commercial activity perhaps of 1885, and the exceeding prosperity which must ensue, may be predicted on existing conditions were it not for two uncertain factors. These are: *First*, The silver question; and *Second*, Uncertainty in regard to the future financial policy of the Government. In respect to the first, there is still time to prevent the debasement of the standard of value to the level of a dollar of light weight, worth but little more than 80 cents in gold; but every year's delay will bring the country nearer to the inevitable disaster which must ensue from our existing acts of legal tender and coinage. In respect to the second danger, a few months will tell; in the meantime constructive enterprise will wait the decision of the people as to whether their policy shall be one of peace, prosperity, reduced taxation and recuperation, or one of uncertainty, probable aggression, possible war, and of the perversion of the functions of government to purposes of personal ambition and private gain. What effect a temporary cessation of constructive enterprise exerts will be fully treated hereafter. Assuming that both these special causes of disaster, of want of confidence and of continued depression, may be avoided, a period of great future prosperity may be predicted on present conditions, although no man can tell when the exact turn of the tide will come."

NEW-YORK STATE.

FAILED.—We regret to announce the recent failure of Messrs. Guthrie & Clifton, axle-makers, Buffalo, N. Y.

FIRE.—The carriage factory of Morgan & Perry, West New-Brighton, Staten Island, N. Y., was destroyed by fire on the morning of July 19th. Cause supposed to be spontaneous combustion. Loss, \$6,500; insured for \$5,500. The firm have since constructed a new factory, lined with brick, on the same site; and are now again in full running order.

THE WOOD-FILLER FRAUD has shown up several times since we prepared our article about him, which will be found on page 411 of this number. On Thursday, Aug. 14th, he visited Messrs. A. Taylor & Son, and Messrs. A. E. & J. H. Christie, at Nyack, N. Y. Our last month's warning prevented both from being swindled; but we greatly regret that they did not secure him.

FINE CARRIAGE IRONS.—The E. D. Clapp Mfg. Co., Auburn, N. Y., offer in our business pages this month an announcement that deserves to attract special attention. It relates to their irons for side-bar work. The

Company have been at no little pains to attain perfection in this class of work; and, as a result, they now offer sets of irons that are both of fine design and splendidly finished.

NEW-ENGLAND.

PERSONAL.—Mr. Ralph E. Clarkson, of Amesbury, Mass., contemplates visiting Paris, to perfect himself in art studies.

E. S. FELTCH & Co., of Amesbury, Mass., are making extensive additions to their carriage factory, including a new building, steam power, etc.

PERSONAL.—Mr. F. A. Babcock, of the well-known firm of F. A. Babcock & Co., Amesbury, Mass., contemplates a trip to Australia. Although this is ostensibly a business trip, he will not be impervious to the pleasure of the journey. We wish him *bon voyage*.

WITH the present prospects of the Boston & Lowell Railroad extending their tracks to Haverhill, F. D. Parry, of Amesbury, Mass., has an opportunity to boom his practical scheme of having the B. & L. extended still further, and give our carriage men a competing road. It has got to come!

DRIVING.—One of our New-Haven friends, a body-maker, writes thus cheerfully under date of Aug. 7th: "I have been working over-time nights, working to try to get out some landaus that are in a hurry. All the fires in this shop are driving as fast as they can, which is all the news I can give you for the present." It is certainly very encouraging news.

"THE NEW ENGLAND CARRIAGE JOURNAL," a four-page illustrated paper, published semi-occasionally by A. A. White & Co., at Nos. 89 and 91 Union-street, Boston, Mass., is an attractive and interesting sheet, which seems likely to be welcomed by all recipients. It was started in March of the present year. *The Hub*, at its inception, was about the same size and shape, and certainly no more attractive.

LIKES OUR "HOW'S TRADE" ARTICLES.—Mr. D. Arthur Brown, Treasurer of the Concord Axle Co., Penacook, N. H., apparently expresses the opinion of a large class of our readers when he writes as follows: "I have been much interested in the recent reports on 'How's Trade?' given in *The Hub*, and hope to see that feature continued. I think there is something to be learned from a careful study of such reports."

EXCURSION AND PICNIC.—A New-Haven body-maker writes as follows under date of Aug. 8th: "The firm of B. Manville & Co. gave their employes an excursion and picnic on Saturday, July 26th, sailing to Pot Isle, where we had a clam-bake. It was a pleasant day, and in every way an enjoyable occasion; and I know you, Mr. Editor, would have had a good time." He then adds: "The portrait of good old Mr. Manville, on the title-page of the August *Hub*, looks to me almost as if he might speak, so correct it is in both features and expression."

SUCCESSOR TO JASON CLAPP & SON.—Lyman C. Learned, of Pittsfield, Mass., in a circular dated Aug. 11th, announces that he has re-opened the old carriage shops of the late firm of Jason Clapp & Son, and is prepared to attend to carriage repairing in all its branches, and to receive orders for building. First-class work in every particular is guaranteed, as the several mechanical departments will be under the charge of the careful and efficient foremen of the old firm, Messrs. Wm. A. Osborne, Peter Cummings, Amos C. Barker, and other experienced mechanics.

FIRE.—Geo. W. Marden's carriage shop, in the rear of the American House, Amesbury, Mass., narrowly escaped total destruction by fire on Saturday evening, Aug. 9th. It was about 9.30 o'clock, P. M., when the fire was discovered. It is supposed to have caught from sparks from a forge in the blacksmithing department, which lodged in the ceiling, and it then worked its way to the second story. The fire was in a dangerous locality, but by the prompt efforts of the firemen it was prevented from breaking through the building. Mr. Marden loses \$1,000 by damage to stock, and A. M. Huntington \$300 on the building. Both were fully insured.

A DOG-CART EXCURSION on a dog-day was the unique event which occurred in Amesbury, Mass., during the first week in August. The inventive brain of D. J. Marston originated the trip, while "Jovial Joe" (Clarkson) headed the procession of some twenty-five dog-carts, hung on six different styles of springs, all "devoid of horse motion." Of course Mr. M. McClure and "Pop" Caldwell were the deacons of the crowd, and gave dignity to the occasion. The objective point was the Ocean House at Hampton Beach. After the menu had been thoroughly discussed, a committee was chosen from the guests at the hotel to participate in a few free open-air rides, to test the riding qualities of the various carts. We understand that a cart hung on the Starkey system of springs was awarded first place, while Locke & Jewell came in a good second. At a late hour the excursionists returned to Amesbury in condition creditable alike to dog-carts, drivers and passengers.

THE LATE GEORGE FULLER, New-England's farmer artist, possessed the true poetic instinct, combined with earnestness of purpose, noble aims, and marked individuality, to a degree that should make his memory dear to all Americans who appreciate native genius. Our artist friends assure us that it was only by reason of imperfect early training, and consequent lack of technical facility, that he missed reaching the highest position among American delineators of portraits and idyllic heads; but our impression is that he will be awarded that position by the next generation of critics, in spite of any real or fancied defects of style. Appreciative reviews of his life and art methods appear in the September issues of *Atlantic Monthly* and *Harper's Monthly*, which well deserve careful reading; and a highly successful reproduction of one of his charming ideal heads, engraved by Closson, forms an attractive frontispiece to the latter, while a portrait of the artist himself, on page 520, will be found equally interesting.

DECEASE OF A VETERAN CARRIAGE-MAKER.—Died, at his home in Pittsfield, Mass., on July 27th, Edwin Clapp, aged 75 years. Mr. Clapp was one of Pittsfield's oldest, most prominent and most successful business men and citizens, and he occupies a prominent place in the annals of the American carriage trade. He was born in Pittsfield, May 1, 1809, and was the son of Jason Clapp, who, coming from Northampton in 1802, established the afterwards famous carriage factory in Pittsfield, about the time of Edwin's birth. During the youth of the latter, his father was not only successfully carrying on this factory, but also, in connection with a partner, was running one of two rival stage-coach routes between Albany and Northampton, then the center of travel in the Connecticut valley. In these enterprises Edwin took a lively interest and proved a valuable assistant to his father, who admitted him to partnership when he came of age. The stage-coaches were successful until they were superseded by railroads, and the factory was continued by the son, after the father's death, until he retired from it when he had acquired a handsome fortune. He afterwards leased it, and it is part of the estate which he leaves. The story of the carriage factory of Jason Clapp & Son forms no small part of the history of Pittsfield's manufacturers.

MIDDLE STATES.

"MIDDLING" is the word whereby Mr. J. G. Crawford, carriage-builder, of Greenville, Pa., condenses his opinion as to the present condition of the carriage business in his place.

PERSONAL.—Our Philadelphia subscriber and correspondent, Mr. Christian Haugaard, has relinquished his position as body-maker in Mr. Wm. D. Gardner's carriage factory, and returned to his former home in Hadersleben, Germany.

PICNIC.—The Carriage-makers of Washington, Pa., held their fourth annual picnic at Moss Point Grove, on Saturday, Aug. 16th, and had an enjoyable time. Five hundred guests were present. The present officers of the picnic club are as follows: John Cook, President; M. Ryan, Secretary; and S. B. Hayes, Treasurer.

A NEW REPRESENTATIVE.—Phineas Jones & Co., Newark, N. J., the well-known wheel-makers, have engaged the services of Mr. Robert Drummond, Jr., lately of Amesbury, Mass. He is the son of that Mr. Drummond who is widely known in the carriage trade through his long association with Mr. James Hume. We believe he will make a success in his new field; and he will find his practical knowledge of carriages a large help in selling wheels.

INCREASED FACILITIES.—Eberly Bros., spoke manufacturers, of Mechanicsburgh, Pa., are building an addition to their shops, 20 x 70 feet, in order to obtain increased facilities for manufacturing, and thus meet the demands of the trade more promptly. Seven years ago Eberly Bros. began their works, which are now the most extensive and complete in their line in their vicinity; and their honestly-made goods, now a standard of quality, find a ready market in both the home and foreign markets.

DIED, at Frankford, Philadelphia, Pa., on Aug. 4th, Thomas Castor, the veteran and esteemed carriage-builder. Mr. Castor was born in Frankford, on Oct. 14th, 1810, making his age nearly seventy-four years. In early life he was apprenticed in the wheelwright business. In 1883 he commenced trade on his own account near his residence, and for several years past has carried on an extensive business in wagon and carriage building. He was esteemed for his industry and strict business integrity, his genial and kindly disposition, and his long and earnest efforts in forwarding various public improvements with which he was identified.

PHILADELPHIA FOUR-IN-HAND COACH.—D. M. Lane's Sons, of Philadelphia, write as follows, under date of Aug. 8th, in relation to the representation of their new Four-in-hand Coach, as presented among our last month's fashion plates. They say: "Too much praise cannot be given Mr. Kehrl for the creditable picture he has made, and neither can we help but admire the liberal spirit of *The Hub* in sending its representative on this special business. When we consider that your draftsman did not see the coach finished or even set up, but was obliged to rely on measurements and a sight at the vehicle in parts, we think he has made a very fair representation."

WESTERN STATES.

ASSIGNED.—On July 31st, John Kempel, of St. Louis, Mo., carriage-manufacturer, made an assignment to Henry Geigenheim for \$45,556.

FIRE.—The carriage shop of B. Janson, Effingham, Ill., was destroyed by fire on July 23d. Loss, \$12,000; without any insurance. Cause unknown.

NEW QUARTERS.—Mr. C. B. Clarke, St. Louis, Mo., whose patent tire is now largely used by the trade, has been compelled to build an addition to his factory, 50 x 109 ft., three stories. In future his offices will be in the factory, at No. 2021 Pine-st.

PERSONAL.—Mr. David Ravekes, of Messrs. Sullivan & Ravekes, leading color and varnish manufacturers and jobbers, of San Francisco, has been making an extended business trip eastward, visiting Salt Lake City, Omaha, Chicago, New-York, Boston, Cleveland, Louisville and St. Louis. He reports business as promising.

THE ROTATING PARTS OF MACHINERY.—Discussing the principles of this important subject, the Defiance Machine Works, Defiance, Ohio, issues a small treatise that should be in the hands of all manufacturers who use machinery, and particularly those who employ shafting and pulleys. It will be sent on application; and we recommend prompt application for a copy.

VERY PRETTY.—Palm Bros. & Co., of Cincinnati, O., have kindly sent us a specimen of their new chromo-lithograph advertising card, inclosed in a handsome frame. The design is pleasing, and the colors and printing are really admirable. We feel sure that any who are favored with this attractive office decoration, will gladly give it prominent wall space, as we have already done.

ONE SUBSCRIBER'S ESTIMATE.—Mr. Wm. H. Root, of Laramie, Wyoming Territory, who is agent for the Cortland Wagon Co., Fish Bros. & Co., the Columbus Buggy Co., the Racine Wagon and Carriage Co., and other leading carriage and wagon-builders, expresses his estimate of *The Hub's* value to him in the following complimentary terms (Aug. 7th): "We find your *Hub* of the greatest assistance to us in a hundred different ways; and we would not do without it for a hundred dollars a year!"

SAND AND MUD BANDS.—Willis M. Farr, of Dowagiac, Mich., manufacturer of sand and mud bands, writes that the demand is steadily increasing for his valuable attachment, his trade in which has gradually spread from a few sets sold a few years ago in the county where he is located, to the most distant parts of the country. He would like to have every carriage-maker place some of them on vehicles in his own place; and with a view to carrying out this idea, he requests that every reader of *The Hub* who may feel interested will write to him for particulars.

"VERY GOOD."—From The City Carriage Works, of Fort Wayne, Ind. (Messrs. Dudenhofer, Daniels & Buckner), we have received the following cheering report, written under date of Aug. 9th: "Business has been very good with us so far this year. We aim to keep constantly on hand a medium stock of the leading styles of fine light work, but have been unable to do so this year, as our stock is now nearly exhausted, and we are still working our entire force on orders. Repairs have also been very brisk."

THE ASSIGNMENT OF SCOFIELD & COOPER, proprietors of the Ovid Carriage Works, Ovid, Mich., was announced in our last number. Later advices give the following additional particulars: The total liabilities are \$66,004.98, of which there is secured by chattel mortgage, \$34,000, and by real estate mortgages, \$5,300. The appraiser's estimated cash value of the assets is as follows: Stock, \$33,852.79; machinery and tools, \$3,911.14; real estate, \$4,800; notes and accounts, \$3,929.76; total, \$46,493.69. Messrs. Scofield & Cooper say: "We consider the above appraisal low, and that by the factory running, manufacturing and selling the stock, more can be realized out of it than any other way, and more than appraised at." Their estimate of the assets aggregates \$52,128.27. Mr. J. C. Anderson, who has acted as salesman for the house for several years past, has been appointed assignee; and a plan of settlement will be submitted to creditors at an early date.

OBITUARY.—Died, on the morning of Friday, Aug. 8th, Sidney S. Hurlbut, President and founder of the Hurlbut Manufacturing Co., Racine, Wis., in his 79th year. He was born in Benson, Vt., Oct. 27th, 1805. In 1814 he removed to Hoosick Falls, N. Y., and subsequently to New-York City, where he engaged in the business of a druggist for several years. He afterwards em-

barked for Matamoras, Mexico, with a cargo of goods, where he went into business. In 1835 he returned North and took a position as book-keeper in the Oswego Bank, at Oswego, N. Y., and in 1843 he severed his connections there and removed to the then village of Racine, Wis., where he has resided ever since. From early youth Mr. Hurlbut was inclined to mechanical pursuits. He invented one of the earliest reapers known, parts of which are still valuable; and in the years 1870-2 he invented and perfected the Hurlbut wagon brake, which has come into extensive use, and, two years ago, large shops were opened for its manufacture at Racine Junction. During his long life, Mr. Hurlbut was overtaken by many vicissitudes, but he lived to see the reward of his struggles.

FIRE.—C. A. Sylvester's carriage and wagon factory, at Charles City, Iowa, was destroyed by fire on Thursday evening, July 24th. The shops occupied three large two-story buildings, used for blacksmithing, wagon and carriage work, painting, storage, etc., employing 25 men; and there was an unusual stock on hand, including a large quantity of finished work. Mr. Sylvester's total loss on buildings, machinery, materials, and finished and unfinished work, is variously estimated at from \$35,000 to \$43,000, with insurance of \$23,000 (one report states the insurance at \$25,000 and another at \$21,000). We are informed that the insurance was adjusted at about \$11,000. The cause of the above fire is considered doubtful, and ugly reports have been circulated that it was of incendiary origin, and due to interested parties, though no evidence of the truth of this is presented in the six reports which are now before us; and "Oily Rag" has so often proved the incendiary of carriage shops in times past, that we are inclined to charge the disaster to that source until we have proof to the contrary.

SOUTHERN STATES.

OUR NEW SOUTHERN EXCHANGE.—The *Southern Coach-Maker*, published by the Southern Coach-Maker Co. (The Nashville Carriage and Buggy Co.), at Nashville, Tenn., shows marked improvement each month, and promises to become a standard and valuable trade journal. The addition of illustrations would greatly improve it, and these will no doubt follow in time. The August issue is No. 6.

FIRE.—On Thursday evening, July 31st, just after the men employed in Harvey & Hillard's carriage and wagon factory, at Pensacola, Fla., had quit work, a huge volume of smoke was seen to issue from the engine-room of the factory, and before the cry of fire could reach the City Hall the engine-room was wrapped in one sheet of flame. It was only with the most strenuous exertion that the buggies and a few sets of harness were saved, and every thing else was totally destroyed. The cause of the fire is unknown. Messrs. Harvey & Hillard's loss is about \$30,000, including about 60,000 feet of lumber; their total insurance on building and stock was \$14,300. With characteristic energy the firm went to work the following day in temporary shops; and a new factory, with increased facilities, is now in process of construction.

CANADA.

COWPER BROS., carriage-builders, of Thamesford, Ont., make the following encouraging trade report under date of Aug. 8th. They say: "We have great pleasure in saying that business is good with us,—the best we have had since we commenced business five years ago next month!"

THE MANVILLE PORTRAIT.—Mr. Thos. Furnidge, of Hamilton, Ont., who made the prize draft published in this number, writes as follows, under date of Aug. 8th: "I was much pleased, on receipt of the August *Hub*, to see the life-like portrait of my late employer and much respected friend, Mr. Manville, of New-Haven. I consider the portrait an excellent one, for which *The Hub* deserves much credit."

THE FOLLOWING TRADE REPORT FROM TORONTO has been communicated by our friend Mr. J. L. Bronsdon, of that city, under date of Aug. 9th: "Business here seems to be reviving. As a rule the carriage-makers have disposed of most of the work made up this spring. They still complain that money does not come in fast enough, but expect that good crops this fall will make a change for the better. The general feeling is more hopeful."

FIRE.—The burning of Lawson & Wallace's carriage factory, at Amherst, N. S., has already been noticed in *The Hub*, but we are now in possession of further facts. The fire occurred on May 17th, cause unknown; and resulted in the total destruction of their building and contents, including machinery, tools, unfinished work, 21 finished carriages and several sleighs. Loss, \$4,000; insured for \$1,700. Both partners are young men, who had been in business only 16 months, and the disaster was sufficiently serious to discourage many; but, with the help of friends, they made a new start three days later, and put 30 men to work on a new factory, and 12 horses to hauling lumber. Five days after the fire, they had their old staff again at work at their benches; and with their present increased facilities for manufacturing, they expect to turn out 125 carriages and sleighs during the current year. One of the partners writes: "I hope to be in New-York soon, and I will then explain more about our 'Down-East business,' which no doubt appears small to you; but we are young yet, and quite willing to learn from our American cousins." The writer kindly adds: "We highly appreciate *The Hub*, which we find of much value to us."

FOREIGN.

"THE STABLE," London, Eng., prominently advertises itself as "The special advocate for the repeal of the carriage tax."

"FLOURISHING"—Mr. Bosworth, carriage-builder, of Newtown, Great Malvern, Eng., writes: "Business with me is flourishing; in fact, I am very busy."

AMERICAN-SCOTCH BUGGIES.—Mr. Peter Holmes, of No. 8 Cook-street, Glasgow, Scotland, advertises himself as "Manufacturer of American Buggies, Sulkies, etc." It appears from Mr. Holmes's attractive circular, which we take pleasure in acknowledging, that he was formerly a resident of this country.

THE BRITISH LABOR MARKET, as reported by the London *Labor News* of July 9, continues very unsettled. "Wages disputes and strikes were cropping out in all directions. Large numbers of miners were on a strike in East Worcestershire and South Staffordshire, and several thousands of employes at Dowlais Collieries had struck."

IMPROVEMENT.—J. Roberts & Sons, proprietors of the West-of-England Carriage Works, Bridgwater, Eng., make the following trade report under date of July 26th: "In reply to your inquiry respecting business, we found it very slack at the commencement of the year; but we are at present full of orders, chiefly in cheap vehicles. We herewith inclose remittance, 12 shillings, being one year's subscription for *The Hub* to March, 1885."

SHORT AND NOT SWEET.—One of our subscribers in Calcutta, India, writing from a coach factory in that city, under date of May 7th (letter received by us on July 8th), replies to our inquiry "How is business with you?" by the very expressive symbol "D. B." We are rather glad on the whole that we didn't receive this report in time to introduce it in our canvass of the question "How's Trade?" for it would have required a new and superlative class heading which we were fortunately permitted to avoid.

TRADE **VALENTINE'S** MARK.

"THE STANDARD FOR QUALITY."

Our Varnishes, Ground Roughstuff, and Coach Colors are kept in stock and are for sale by the following Dealers:

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C. COWLES & Co. 47 Orange-st. " "

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VOORHEES BROS. MORRISTOWN.

MARYLAND.

HIRSHBERG, HOLLANDER & Co. 240 W. Pratt-st BALTIMORE.
EDW. JENKINS & SON 180 Baltimore-st. " "
G. R. DODGE & Co. 42 W. Baltimore-st " "

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KENT IRON AND HARDWARE Co. 205 Shipley-st. WILMINGTON.

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GEO. WORTHINGTON & Co. 59 St. Clair-st. " "
STRONG, COBB & Co. 114 Superior-st. " "
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COFFIN, DEVOE & Co. 176 Randolph-st. " "
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—And for the Pacific Slope.—

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T. W. EADY & SON 54 York-st. SYDNEY.

NEW-ZEALAND.

E. W. MILLS & Co. WELLINGTON.

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BRAZIL.

HANRIOT & GARCIA RIO DE JANEIRO.

VALENTINE & COMPANY,

MANUFACTURERS OF

Fine Coach and Railway Varnishes and Colors,
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CHICAGO,
68 Lake-street.

BOSTON,
153 Milk-street.

PARIS,
91 Champs-Elysées.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Conrad B. Day & Co., Philadelphia, Pa... 436
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct..... 456
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York. 429
Kemper Bros., Cincinnati, O..... 436
Ten Eick & Kent, 1553 Broadway, New-York 436
S. D. Kimbark, Chicago..... 435

AXLES.

- R. Cook & Sons, Winsted, Ct.....
Carriage and Wagon Axles.
Dalzell & Co..... 452
Improved Colling's Axle.
Goodyear & Ives, New-Haven, Ct..... 436
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O.....
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 437
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilmington, Del..... 447
The Quaker Axle.
Wood, Smith & Co., Fort Plain, N. Y.... 433
Fort Plain Spring and Axle Works.

BODIES.

- F. T. Clymer, Wilmington, Del..... 439
Carriage Bodies and Carriage Parts.
Jas. Driscoll & Sons Co., Springfield, O.... 429
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 424
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago..... 435
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O.... 452
Bodies.

BOLTS.

- Norwich Bolt Works, Norwich, Conn..... 454
Genuine Norwry Iron Bolts.

CARRIAGES FOR THE TRADE.

- D. A. Altick & Sons, Lancaster, Pa..... 433
Anderson, Harris & Co., Cincinnati, O....
Carriages, Buggies and Phaetons.
D. Argerbright, Troy, O..... 428
Road Cart.
F. A. Babcock & Co., Amesbury, Mass.... 427
The Clarkson Road Cart.
S. R. Bailey, Amesbury, Mass..... 433
Sleighs in the Wood and Iron.
Forder & Co., Limited, London, Eng.....
The Royal Hansom.
Northwestern Sleigh Co.....
Carts.
Renick, Curtis & Co., Greencastle, Ind.... 448
The Renick & Curtis Patent Road Cart.
Youngstown Carriage and Wagon Co., Youngstown, O..... 453
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 436
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa.
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 438
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O..... 446
Cincinnati Screw and Tap Co., Cincinnati, O. 435
Drills, Screws, Taps, etc.

- The E. D. Clapp Mfg. Co., Auburn, N. Y. . 446
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
C. B. Clarke, St. Louis, Mo..... 450
Silvester Patent Tire.
C. Cowles & Co., New-Haven, Ct..... 451
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
Cortland Box Loop Co., Cortland, N. Y.... 454
Cortland Buckle Loop.
Crandal, Stone & Co., Binghamton, N. Y. 449
Carriage Hardware.
Dayton Malleable Iron Co., Dayton, O.... 442
Carriage Hardware.
Eberhard Mfg. Co., Cleveland, O.....
Carriage, Wagon and Saddlery Hardware.
W. M. Farr, Dowagiac, Mich..... 447
Common Sense Sand and Mud Band.
M. T. Gleeson, Columbus, O..... 430
Fine Carriage Mountings.
Herbrand Co., Fremont, O..... 430
Herbrand Gear Irons.
Kerr & Reid, Bridgeport, Ct..... 430
Cart Irons.
S. D. Kimbark, Chicago..... 435
Carriage and Wagon Hardware.
Kopsch & Polya, New-York City.....
Carriage Door Lock.
Geo. G. Larkin..... 453
Carriage Top Stays.
Metal Stamping Co., New-York..... 431
Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)
Queen City Forging Co., Cincinnati, O.... 443
Carriage Hardware.
H. B. Pitner & Co. Plymouth, Ind.....
Whip and Line Holders.
Rubber Step Mfg. Co., Boston, Mass..... 442
The Rubber Covered Carriage Step.
H. D. Smith & Co., Plantsville, Ct.....
.....4th cover page
The "Encircled S" brand of Fine Carriage Forgings.
H. M. Strieby & Co., Newark, N. J..... 433
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
Topliff & Ely, Elyria, Ohio..... 427
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
Trenton Iron Co..... 426
Wire for Ties and Can Openers.
Vehicle Shaft Supporter Mfg. Co., Cincinnati, O..... 449
Iron Shifting Rails.
White Mfg. Co., New-Haven, Ct..... 454
Pole Crabs.

IRON AND STEEL.

- S. D. Kimbark, Chicago..... 435
American and Norway Iron, Steel Tire, etc.
Wm. & Harvey Rowland, Frankford, Philadelphia 444
Iron and Steel. (See also Springs.)

LAMPS.

- C. Cowles & Co., New-Haven, Ct..... 451
(See also Hardware and Mountings.)

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 446
A Substitute for Leather.
T. P. Howell & Co., Newark, N. J..... 447
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich..... 438
Little Giant Hub-Borer.
W. F. & John Barnes, Rockford, Ill..... 441
Foot and Steam Power Machinery.
Bentel, Margedant & Co..... 454
Woodworking Machinery.

- Capital City Mach. Works, Columbus, O... 4
Standish Imp. Foot Power Hammer or Oliver.
The Egan Co., Cincinnati, O..... 4
Carriage Wood-working Machinery.
Defiance Machine Works, Defiance, O.... 4
Hub, Spoke, Wheel and Bending Machinery.
J. A. Fay & Co., Cincinnati, O..... 4
Woodworking Machinery.
Heald & Morris, Baldwinsville, N. Y..... 4
Engines.
George W. Heartley, Toledo, O..... 4
Little Giant Axle Box Press.
Mason Wheel Co., Crown Point, N. Y.... 4
Wheel Tenoning Machine.
H. A. Moyer, Syracuse, N. Y..... 4
Hub Boring and Boxing Machine.
C. F. Pettingell & Co., Amesbury, Mass... 4
Full line of Patented Carriage and Wheel Machinery.
Uhler & Benton, New-York..... 4
The Lewis Axle Machine.
Wiley & Russell Mfg. Co., Greenfield, Mass.
.....2d cover page
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 4

PAINTS and PAINTERS' MATERIAL

- Billings, Taylor & Co., Cleveland, O..... 4
Coach and Car Colors and Varnishes.
Carey, Ogden & Parker, Chicago, Ill.....
.....3d cover page
Coach and Car Colors.
F. W. Devoe & Co., New-York... 3d cover page
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa.... 4
Ivory Drop Black.
Miles Bros. & Co., New-York..... 4
Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.
Chas. Moser & Co., Cincinnati, O..... 4
Palm & Fechteler, New-York..... 4
Transfer Ornaments.
Reno Bros., Pulaski, Pa..... 4
French Umber Filler.
Sullivan & Ravekes, San Francisco, Cal.... 4
Varnishes, Paints, Oils, Glass, etc.
Chas. D. Thum, Philadelphia, Pa..... 4
Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.
Jno. L. Whiting & Son, Boston, Mass..... 4
Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.

PUBLISHERS.

- "The Hub," New-York City.....
.....432, 435, 440, 448,
E. Taylor & Co., London, Eng..... 4
"The Stable."
Wm. M. Bradley & Bro., Philadelphia, Pa.
Mitchell's Atlas.

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind....
Gears.
Bridgeport Spring Co., Bridgeport, Ct....
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.
Canton Spring Co., Canton, O.....
Carriage, Wagon and Seat Springs.
Cleveland Carriage Bow Co.....
Selle's Platform Gears.
Dexter Spring Co., Hulton, Pa.....
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.
Henry Spring Co., Winsted, Conn.....
The Henry Single-leaf Rib Spring.
Johnson & Rose, Detroit, Mich.....
Springs and Gears.
Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa.....
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)
Longstreth & Ayer Mfg. Co., Columbus, O.
The L. & A. Adjustable Side-spring.

gnier & Thomas Spring Co., Wellsville, N. Y.....	430
Improved Thomas Spring.	
holland Spring Co., Dunkirk, N. Y....	426
The Mulholland Spring.	
tional Vehicle Co., Racine, Mo.....	453
Shaw's Patent Gearing.	
D. Olin & Co., Cincinnati, O.....	425
The Olin Springs.	
e Spring & Carriage Co., Pittston, Pa..	434
Rice Carriage Springs.	
W. Saladee, Torrington, Conn.....	450
"Duplex Springs."	
n. & Harvey Rowland, Frankford, Phila- delphia, Pa.....	444
Fine Springs from Swedish Stock. Also Iron and Steel.	
W. Shuler, Amsterdam, N. Y.....	437
The Shuler Springs and Gears.	
e Edward Storm Spring Co., Pough- keepsie, N. Y.....	437
Storm Side-bar Springs.	
D. F. Thompson, Oshkosh, Wis.....	
Thompson's Improved Climax Gear.	
nry Timken, St. Louis, Mo.....	439, 445
The Timken Cross-Spring.	
mlinson Spring Co., Newark, N. J.....	436
Fine Springs and Axles.	
Tomlinson Spring and Axle Works, Bridgeport, Ct.....	443
Spring: Specialty, The Hamlin.	
thill Spring Co., Chicago, Ill.....	454
Fine Springs, including Timken, Pennoyer, Stickle, Groot, Brewster, and other patent Springs.	
R. & J. C. Wilson, Detroit, Mich.....	444
The Wilson Side-bar Cross-spring.	
od, Smith & Co., Fort Plain, N. Y.....	433
The American Standard Springs and Axles.	

TOOLS.

ambers, Bros. & Co., Philadelphia, Pa..	443
Bolt and Rivet Clippers.	
incinnati Screw and Tap Co., Cincinnati, O.	435
D. Kimbark, Chicago.....	435
All latest improvements in Tools and Machines.	
W. Manneer, Rochester, N. Y.....	454
Manneer's Bench Drill.	
rtter & Wooster, Boston, Mass.....	442
"Easy" Bolt Clipper.	

TRIMMERS' MATERIALS.

itive Manufacturing Co., Cincinnati, O...	446
Carriage Dashes. (See also Hardware.)	
merican Tack Co., Fairhaven, Mass.....	425
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)	
htabula Carriage Bow Co., Ashtabula, O	428
Leather Covered Bow.	
idgeport Coach-Lace Co., Bridgeport, Conn.....	436
Coach Laces and Trimmings.	
leveland Dash Co., Cleveland, O.....	434
Carriage Dashes and Fenders.	
leveland Carriage Bow Co., Cleveland, O.	448
Leather-covered Carriage Bows.	
ortland Box Loop Co.....	454
(See Hardware.)	
anial, Stone & Co., Binghamton, N. Y..	449
Carriage Trimmings.	
urham & Wooster, New-Haven, Conn...	423
English Canopies	
celsior Top Co., Cortland, N. Y.....	426
Carriage Tops.	
glish & Mersick, New-Haven, Conn....	456
Carriage Broadcloths, Canopies and Canopy Top Fringes.	
urdt, Von Bernuth & Co., New-York City,	449
Carriage Cloths, etc.	
urris Button-Hole Co., Lim., New-York.	428
Pat. Crimped Leather Knob Eyelets.	
apanese Hair Mfg. Co., Jersey City, N. J.	438
Japanese Hair and Japanese Moss.	
D. Kimbark, Chicago.....	435
Cloths, Leather, etc., etc.	
as. P. Ketterer, New-York.....	426
Wagon Curtain Fastener.	
Z. Kroh & Bro., Toledo, O.....	441
Tops, Cushions, Backs, Falls, etc.	
ngstreth & Ayer Mfg. Co., Columbus, O.	426
Dashes, etc.	
etal Stamping Co., 64 Reade-st., New-York,	431
arker Carriage Goods Co., Cincinnati, O.	425
Carriage Trimmings in great variety.	
Rathey, New-York.....	450
Sleigh Dash-Screens.	
J. Schmid, New-York.....	438
Hand-made Coach Laces, and all kinds of Trim- ming Materials.	
n Eick & Kent, New-York City.....	436
Carriage and Sleigh Materials of every descrip- tion.	
opliff & Ely.....	427
See Hardware.	

VARNISHES, JAPANS, ETC.

Moses Bigelow & Co., Newark, N. J.....	434
Established 1845. Fine Coach and Car Varnish Manufacturers.	
John Babcock & Co., Boston, Mass.....	2d cover page
Billings, Taylor & Co., Cleveland, O.....	453
Coach and Car Colors and Varnishes.	
F. W. Devoe & Co., New-York..	3d cover page.
Carriage, Coach and Car Colors.	
DeGolyer & Bro., Chicago, Ill.....	
Wearing Body Varnish.	
Felton, Rau & Sibley, Philadelphia, Pa....	447
Wm. Harland & Son, Merton, Surrey, England.....	2d cover page
On sale in America by first-class dealers in prin- cipal cities.	
Hildreth, Templeton & Co., New-York....	3d cover page.
Supertine Coach and Car Varnishes.	
King Varnish Co., Akron, O.....	423
Fine Coach Varnishes.	
Moller & Schumann, Brooklyn, N. Y.....	2d cover page
O'Brien Varnish Works, South Bend, Ind..	443
Parrott Varnish Co., Bridgeport, Ct.....	2d cover page
C. C. Reed & Co., New-York City.....	441
Stimson & Co., Boston, Mass..	451
Fine Coach and Car Varnishes.	
Sullivan & Ravekes, San Francisco, Cal...	424
Varnishes, Paints, Oils, Glass, etc.	
Valentine & Company, New-York.....	421
L. M. West, Rockford, Ill.....	438
Carriage-top Dressing.	

WHEELS AND WHEEL STOCK.

C. C. Anderson & Co., Galion, O.....	424
Sarven Patent Wheels.	
Bollenbacher & Sons, Bloomington, Ind...	454
Spokes.	
S. N. Brown & Co., Dayton, O.....	451
Superior Wheels, Hubs, Spokes, etc.	
Crane & McMahon, 38 Park Place, N. Y...	436
(Salesroom, New-York.) Spokes, Rims, etc., and Hickory, Oak and Ash Plank.	
Howard M. DuBois, Philadelphia, Pa. ...	426
Wheels, Hubs, Spokes, etc.	
Hagerstown Spoke Works, Hagerstown, Md.	448
Hoopes, Bro. & Darlington, Limited, West Chester, Pa.....	449
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.	
Phineas Jones & Co., Newark, N. J.....	442
Patent and Plain Wheels, Spokes, Hubs, etc.	
Lambertville Spoke Mfg. Co., Lambertville, N. J.....	436
Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.	
Longstreth & Ayer Mfg. Co.....	426
See Springs and Gears.	
Philip Lebzelter, & Co., Lim., Lancaster, Pa.	436
Fine Wheels and Wheel Material.	
Neil, Tippet & Killian, Lancaster, O.....	453
Patent and Plain Wheels and Gears.	
New-York Sarven Wheel Co., New-York..	441
Branch of Royer Wheel Co., Cincinnati, O., which see.	
Rochester Wheel Co., Rochester, N. Y....	450
Wheels, Hubs, Spokes, Rims.	
Royer Wheel Co., Cincinnati, O.....	441
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.	
Springer, Morley & Gause Co., Wilmington, Del.,	454
Wheels and Wheel Material.	
Winch & Sons, Bryant, Ind.....	433
White Elm Hub Blocks.	

WOODWORK AND MISCELLANEOUS.

W. B. Allan, St. Catharines, Ont	456
For Sale or to Rent.	
Carriage Builders' National Association, St. Louis, Mo	435
Announcement of Exhibition.	
Combination Seat Co., South Bend, Ind...	438
Perkins' Patent Veneer Seats.	
Herring & Co., New-York City.....	429
Herring's Champion Safes.	
S. D. Kimbark, Chicago.....	435
Burr Patent Bodies. Carriage and Wagon Wood Material.	
John C. Konrad, New-York.....	443
Carriage Drafting and Designing.	
B. Miller, Paola, Kan	448
Miller Adjustable Horse.	
Frank B. Miller, Enon, O.....	431
The Reindeer Cutter.	
Oberly & Schlichter, Telford, Pa.....	439
Receipt for Removing Paint.	
Partner Wanted.....	454
John M. Tufts, Jr., 83 Nassau-st., N. Y...	452
Office Desks.	

Labor Bureau.

SPECIAL NOTICE.—As the present season prom-
ises to be rather a trying one for many carriage mechan-
ics, *The Hub* desires to offer a helping hand by opening
this "Want Column," free of charge to all carriage
mechanics seeking employment, and also to all em-
ployers seeking workmen, the only conditions being,
that each advertisement shall be limited to five lines,
and some address must be given to avoid the necessity
of addressing letters in our care.

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WANTED.—Six good carriage-smiths and painters
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WANTED.—Painters and letterers for railroad
work; also one qualified to act as foreman of shop.
Address P. O. Box 1506, San Francisco, Cal.

Workmen's Department.

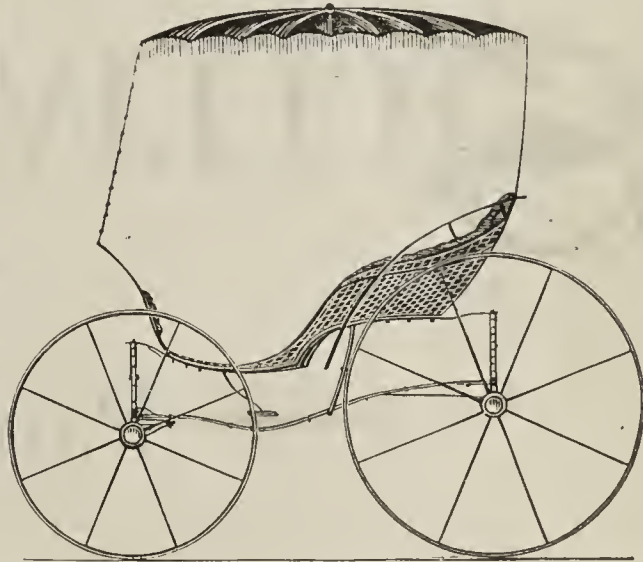
WANTED.—A position by a coach painter; sober
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SITUATION WANTED.—By foreman coach painter
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No. 1.



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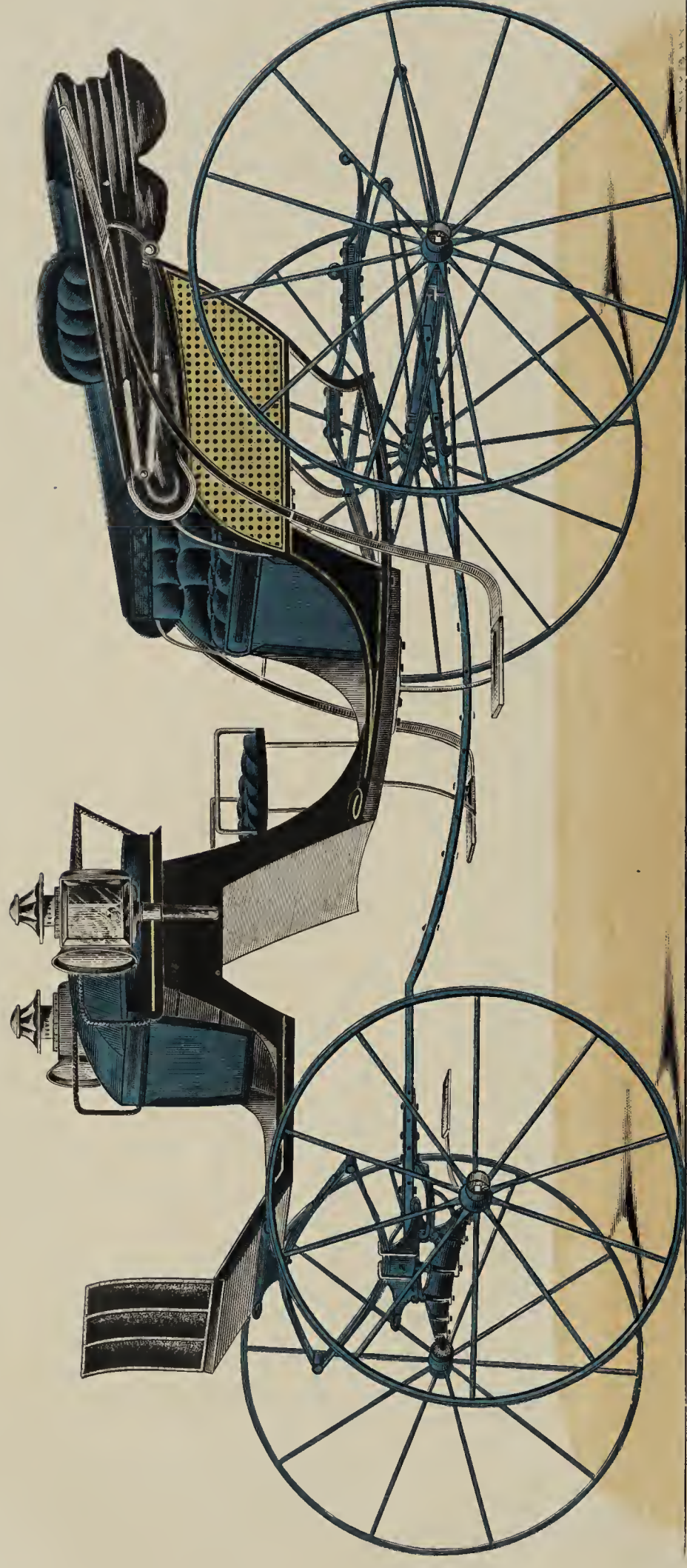
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SAN FRANCISCO.

Correspondence solicited.

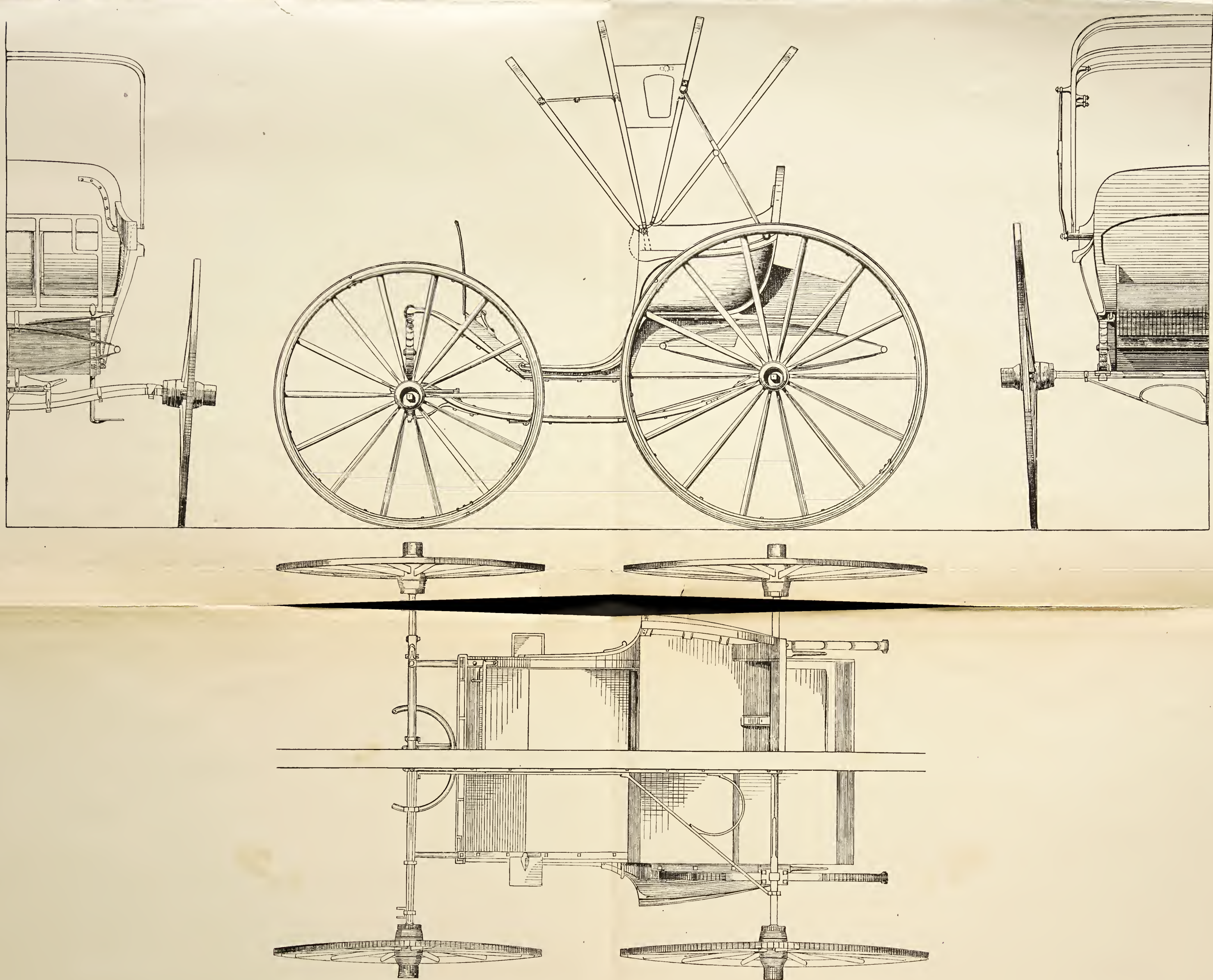
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COLORED PLATE NO. LI. THREE SPRING CABRIOLET WITH OGEE BACK. SCALE, THREE-QUARTER INCH.

LIBRARY
OF THE
UNIVERSITY OF MICHIGAN



FIFTH-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.—Scale, one inch to the foot.

By Mr. GEO. W. KERR, of Bridgeport, Conn.

Awarded the Fifth Prize (Special), in the Class of Working Drawings, by the Jury on Award of *Hub* Prizes, whose Report will be found in our June number, pages 173 and 174. For mechanical description, see page 465 of this number.

THE HUB, October 1, 1884.

The Hub's

Fashion Plates: Autumn Season, 1884.



Plate No. 50. LADIES' OCEE-PILLAR PHAETON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 466.

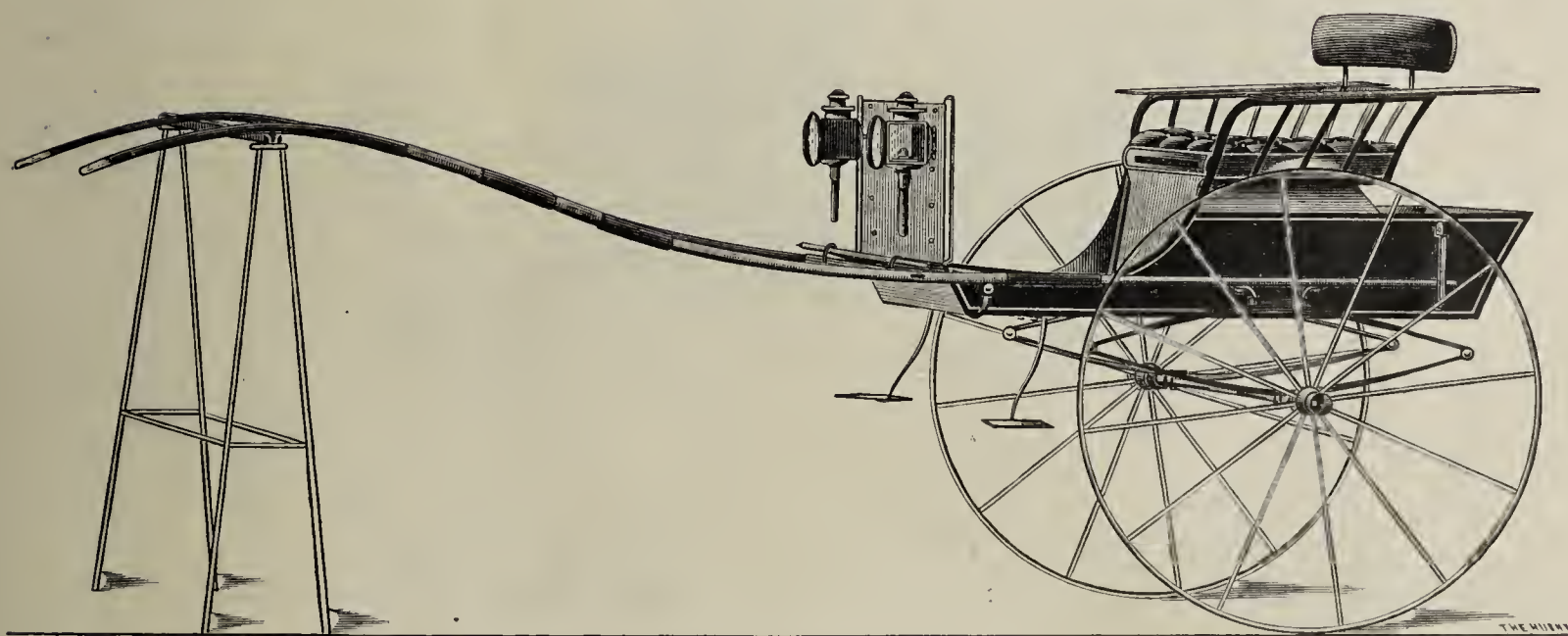


Plate No. 51. WHITECHAPEL CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 466.

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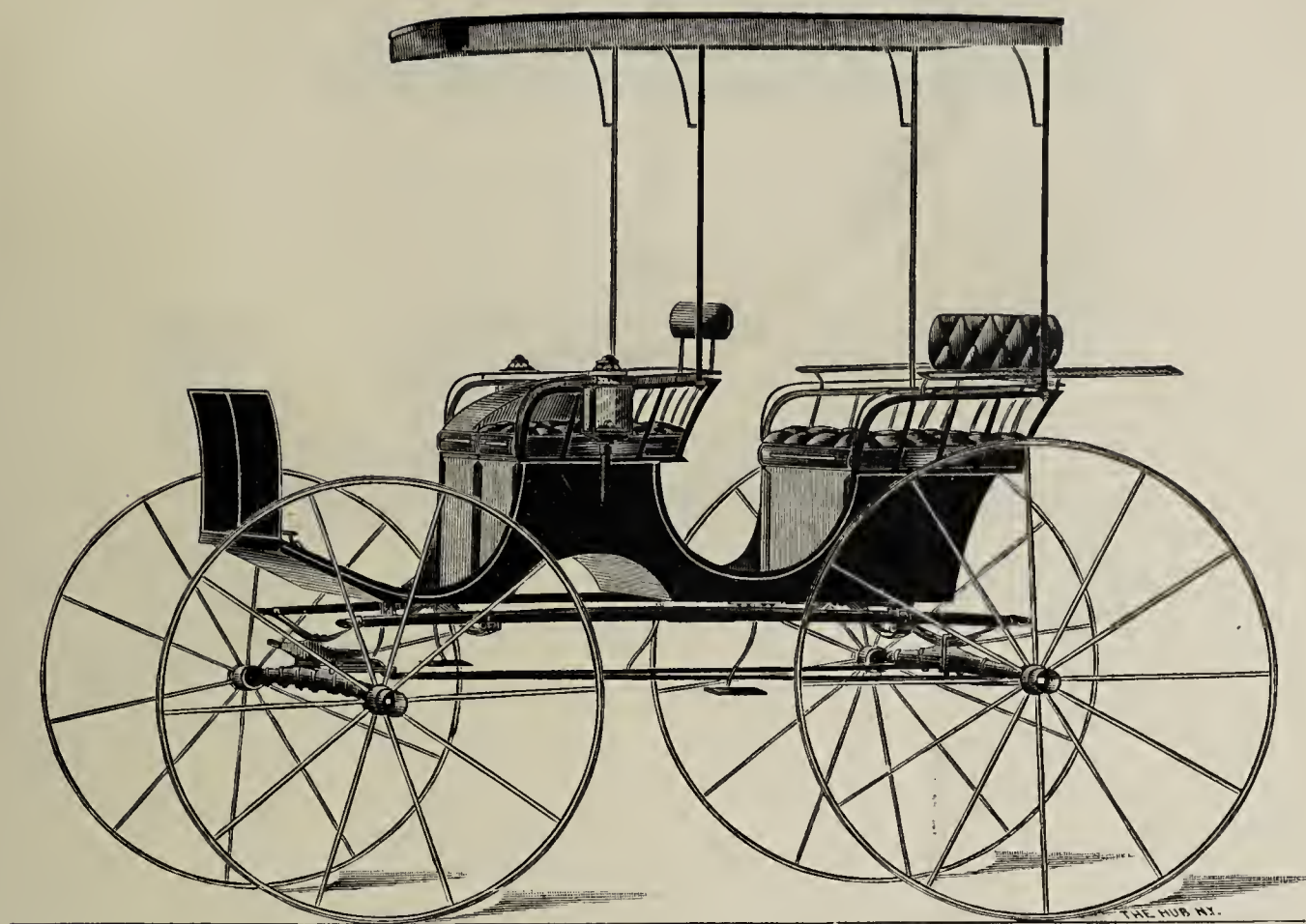


Plate No. 52. FOUR-PASSENGER PHAETON, WITH CURVED ENTRANCE AND CUT-UNDER.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 466.

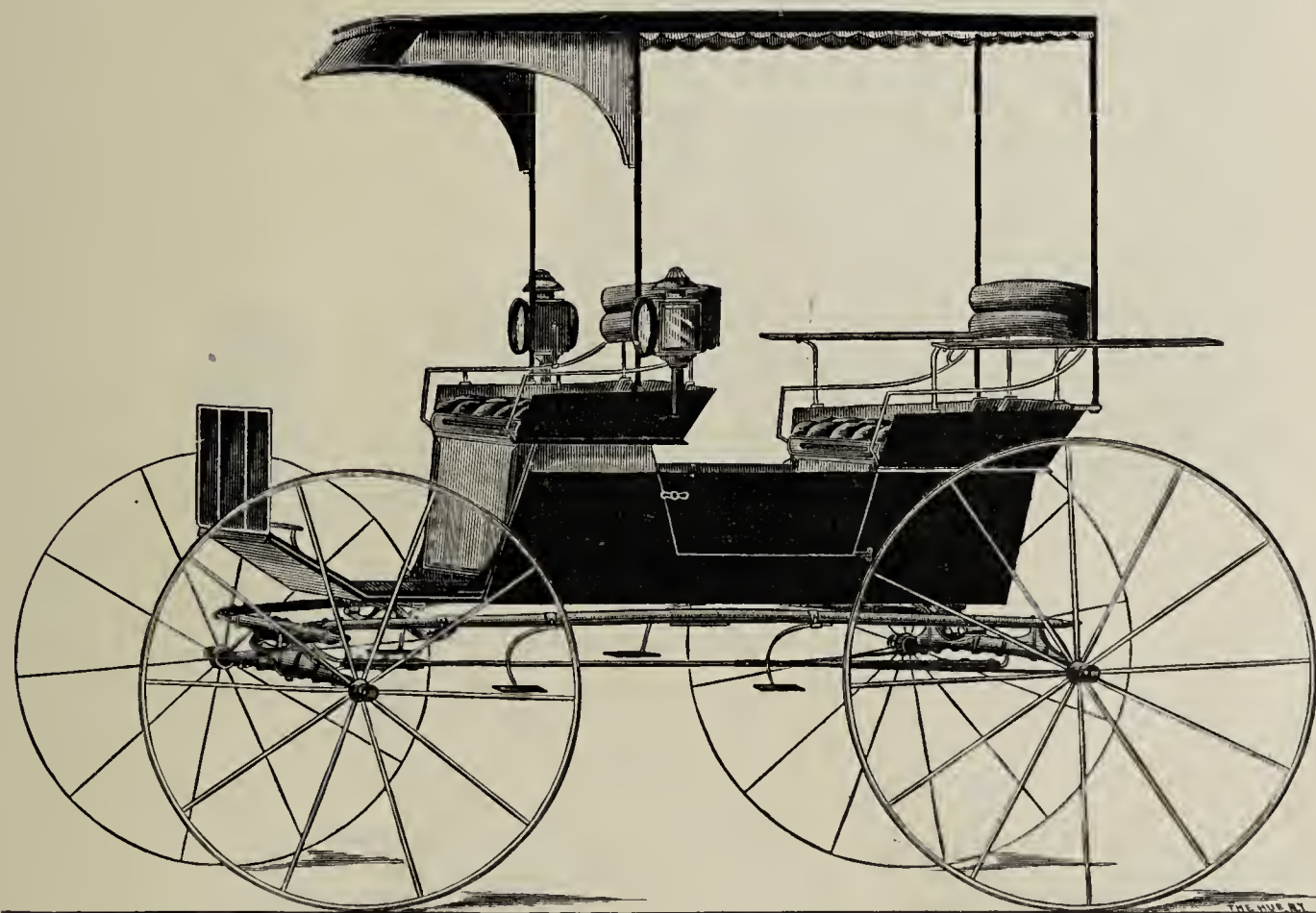


Plate No. 53. DEEP-SIDE FOUR-PASSENGER PHAETON, WITH DOORS.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 467.

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Plate No. 54. EXTENSION-TOP PHAETON, WITH STICK SEAT.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 467.

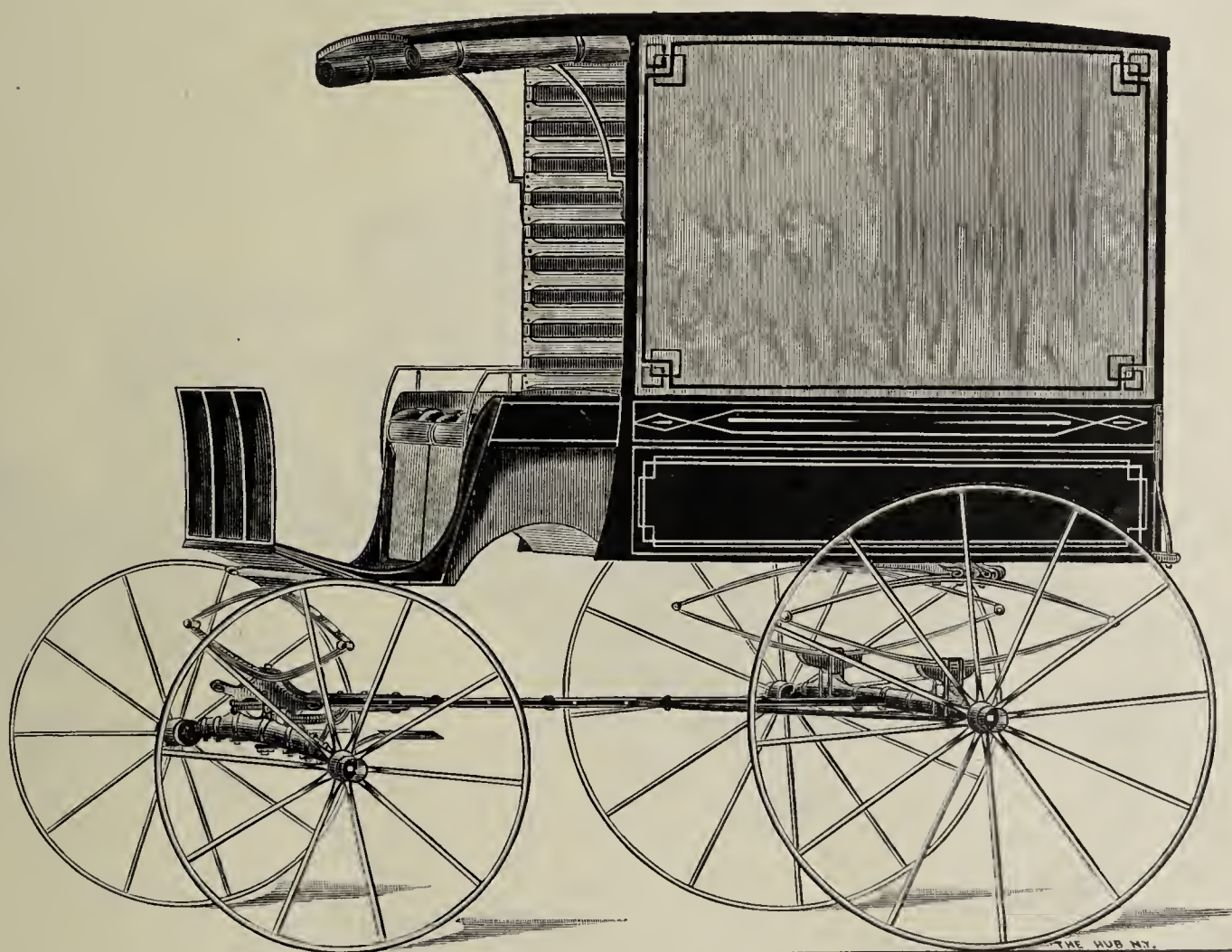


Plate No. 55. WASHINGTON BAKERS' WAGON, ON THREE SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 468.

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Plate No. 56. PHYSICIANS' COUPE, WITHOUT DRIVING-SEAT.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 468.



Plate No. 57. ENGLISH-QUARTER COACH, WITH EIGHT LIGHTS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 468.

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The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, OCTOBER 1, 1884.

No. 7.

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures* (*The Carriage Painter*).

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

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For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Élysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

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AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.



DRAFT-ROOM.

DESCRIPTION OF KERR'S FIFTH-PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

(Designed by Mr. Geo. W. Kerr, of Bridgeport, Conn.)

(See Illustrations on Loose Sheet accompanying this number.)

My conception of the requirements of a Physicians' vehicle is as follows: It should have comfortable seating capacity, be easy of draught, have ample carrying capacity and comfortable seat-room, and, above all, it should be easy of access.

In adopting the peculiar design which is shown in my drawing, I have endeavored to fulfill all of the above-named requirements. In this pattern the seat and leg-room are both ample. The wheels (for a phaeton) are unusually high, 3 ft. 6 in., and 4 ft., and so located that the occupant can readily step into the vehicle without cramping, which is an important point with physicians. It will be observed that the front of the hind wheel is even with the front of the quarter, and 12 inches space is then allowed between the wheels, sacrificing the usual shape of the loop.

The body is hung very low, the shape of the perch and position of axle allowing this, and the axle being placed so far forward that it does not interfere with the body in turning, while there is ample room between the perch and the body.

The box under the seat opens in front with a lid. The buggy extension at the back affords room for large instrument cases, splints, bandages, etc. This part should be covered with a leather hood. The peculiar shape of the arm-rail is for the purpose of allowing it to be trimmed with a good width of arm-rail inside. The cloth lining is fastened to the outside edge of the upper arm-rail, and the leather to the projecting lower arm-rail.

The side light is placed in a convenient position for the occupant; and its lines are drawn to harmonize with the top after the leather is on. The back joint only is outside the top. The front joint is inside the top, and extends only from the first to the second bow, to avoid obstructing the window, and to allow the front bow to be raised and fastened against the second. This joint is provided on its front end with the usual eye, and is attached to the prop in the usual way; but on the back end it has, instead of an eye, a hook of such form that it can be readily detached from the prop when the bow is raised and adjusted to the second prop attached to the framing of the window.

Geo. W. KERR,

Bridgeport, Conn.

DESCRIPTIONS OF FASHION PLATES.

CABRIOLET ON THREE SPRINGS.

(See Colored Plate No. LI.)

ABOUT twenty years ago Cabriolets hung on three springs were much favored, especially in the Southern and Western States, and in the South they still retain a good share of public patronage, especially for country use. Elsewhere, Cabriolets suspended on four elliptics, or elliptic and platform springs, have been substituted to a great extent, especially in our larger cities, although specimens of the three-spring work are still to be seen in most of the carriage repositories of this and neighboring large cities, and the accompanying Colored Plate, No. LI, represents one of the latest designs.

The body hangs low, thus fulfilling one of the conditions required by the prevailing fashion; but the wheels are of fair height, which is another point with a carriage to be used principally in the country. The rear part of the body resembles that of the vehicle hung on C-springs known as the Duc; while the front is a combination of curved and straight lines. The ogee back-pillar, as usual, is made of bent timber, which is also recommended for the bottomside. The bottomside should not be less than 2 in. wide, to give sufficient substance for framing. The middle pillar is also framed into the bottomside. The sides can be made either of thick whitewood or poplar, or with a thin panel. In the first case the sides are lapped over the middle pillar, and mitered at the rear corner-pillar. If a thin panel is used, then the panel is put into a groove.

The bottom section of the rear part of the body is open, although, it preferred, this can be paneled. The side panels are then fastened inside of the middle and rear corner-pillars. The box formed by this process can be utilized for storing bundles, etc. If the bottomside is made of 3 in. timber, the rockers are then let in even with the inside of the bottomside. The bottomsides are then lightened out to 2 in. from the rear face of the middle pillar to the rear corner-pillar. To make the bottom side 3 in. will avoid the necessity of gluing on a block back of the middle pillar, as would be the case if the bottomside were only 2 in. through out. The front rockers, from the scroll to the toe-board, are each made of five pieces. Two short upright pillars and a horizontal piece constitute the framework of the boot; or, if preferred, the horizontal

rocker can be made of one piece reaching up to the top of the boot. In either case the whole is covered by a thin panel.

The child's-seat is secured to the rocker-plates in the manner illustrated in connection with the description of our Colored Plate No. L (See September *Hub*, 1884, page 394), and is held in position by a pair of legs. The seat drops. The distance from the child's-seat to the driver's-seat is not sufficient to permit of turning up the seat; and the position of the wheel-house prevents the seat from being slid into the boot, which would otherwise be preferable.

Dimensions.—Width of body on top of the middle pillar, 45 in.; ditto rear at the arm rail, 40 in.; ditto at the bottom on the cross-bar, 34 in.; and at the dash, 30 in. Turn-under, 6 in. Rocker-plates, $2 \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. Nos. 16 and 14 screws. Height of front wheels, 2 ft. 11 in.; and rear, 3 ft. 7 in., without the tire. Depth of rims, $1\frac{3}{8}$ in. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, $4\frac{1}{2}$ in.; and rear, $4\frac{3}{4}$ in. diameter. Front bands for front hubs, $3\frac{1}{8}$ in.; and rear, $3\frac{3}{4}$ in. diameter. Front bands for rear hubs, $3\frac{1}{4}$ in., and rear, $3\frac{7}{8}$ in. diameter. Length of front bands, $1\frac{7}{8}$ in. Length of hubs, 7 in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 37 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on top, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{3}{16}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, side panels and back panels for the rear seat, imitation canework; and boot and moldings, black, the latter edged with a fine line of yellow. Running-gear, dark blue, striped with a medium stripe of black, and two medium lines of yellow. Trimming, blue cloth throughout. The back is finished with a roll on top; from there to the seat, pipes are introduced. The pipe pattern is also utilized for the cushion top. The falls are made plain, with but one raiser $\frac{7}{8}$ in. wide. Plain trimming is used for the driver's-seat. Carpet, plain dark blue. Mountings, brass.

LADIES' OGEE-PILLAR PHAETON.

(See Fashion Plate No. 50.)

SEVERAL new and characteristic features will be discovered in this pattern, which, if well constructed, should make a light and attractive vehicle, and at very moderate expense, which is an object at all times.

The bottom, sides and rear corner-pillars are made of bent wood, and should be light, yet strong, which is accomplished by making the inside heavier, and then tapering off to the outside. The bottomside should be about 2 in. wide at the rear corner-pillar, which will give the necessary substance for framing the pillar and the rear cross-bar. The middle pillar is made after the Stanhope pattern, and is also framed into the bottomside; and the rockers extend as far as the rear face of the Stanhope-pillar. The bottomsides are screwed to the rockers. A block is glued in the corner formed by the bottomside and rockers, which is then shaved off, forming a feather-edge at the sill. By this method the fitting of the rocker-plate is rendered less difficult. No panels are used on the sides, sticks only being used here; but a thin panel is used at the back, which is put into the groove all around. The combination of sticks and a panel on the seat is rather a novelty, but promises to give a good effect.

In framing the body, the greatest accuracy must be observed, as the different pieces used in constructing the body are very light; and careless framing, especially at the corner-pillars, might easily produce unsatisfactory results, as the mortises of the corner-pillar and rear cross-bar are there in close proximity, and inaccurate fitting, even if glued in the mortise, will cause the joint to open as a commencement of the trouble, and finally the whole pillar will become loose. Trouble of this kind is most liable at this point, for the reason that the body-loops are here bolted to the body, and, moreover, this part must bear the major portion of the weight when the vehicle is occupied.

It is important to prevent the body-loops from touching the cross-grain of the tenon on the corner-pillar, which would occur in case of the least shrinkage in the bottomsides, or of carelessness on the part of the smith when fitting the body-loops. Avoid having the iron too hot, as this is very apt to scorch the long grains of the bottomside, while it does not affect the cross grain of the tenon of the pillar to such a degree. It will be seen that, in both the above cases, the body-loops will press with more force against the tenon than against the bottomsides; and we would therefore suggest taking a gouge and hollowing the tenon a trifle, in the same manner as is sometimes done with the tenons of spokes on the rims of wheels. The running-gear is made very light, to harmonize with the body, and the perch is made of bent wood.

Dimensions.—Width of body at the top of the middle pillar, 43 in. ditto back, 38 in.; and at the dash, 32 in. Turn-under, $5\frac{1}{2}$ in. Rocker plates, $1\frac{3}{4} \times \frac{5}{16}$ in., fastened with $1\frac{1}{2}$ in. No. 14 screws. Height of front wheels, 2 ft. 7 in., and rear wheels, 3 ft. 4 in., without the tire. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{16}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{1}{4}$ in. The hubs are $3\frac{1}{2}$ in. diameter. Front bands, $2\frac{1}{4}$ in., and back bands, $2\frac{3}{4}$ in. diameter. Length of front bands, $1\frac{1}{2}$ in. Length of hubs, 6 in. Tire, $\frac{7}{8} \times \frac{1}{8}$ in., round edge steel.

The front spring is elliptic, 35 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, namely: the first two No. 3, and the last No. 4 steel. Holes apart on the top half, 3 in. Size of holes, $\frac{5}{16}$ in. The rear spring is elliptic, 36 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first two No. 3, and the last two No. 4 steel. Holes apart on the top half, 3 in. Size of holes, $\frac{5}{16}$ in. Axles, $\frac{7}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of back panel, sticks and Stanhope-pillar, dark green, and moldings black. Running-gear, dark green, a shade lighter than the body color, with a light stripe of black, edged with two hair lines of light green. Trimming, green cloth. The back is laid out with a combination of pipes and squares. The same style is used for the cushion tops. Carpet, green, with black figures. Mountings, silver.

WHITECHAPEL CART.

(See Fashion Plate No. 51.)

THERE is no other class of wheeled vehicles produced in such numerous varieties of style and finish as those coming under the title of carts. The accompanying Fashion Plate shows one of the latest developments.

The body resembles that of a Whitechapel Buggy. The seat is made with sticks, which could be replaced, if preferred, by solid sides and back; but a stick seat seems preferable, as it gives a pleasing contrast, and is light and stylish in appearance. We would recommend the use of V-shaped sticks. The rear corner-pillar is either sawed out or made of bent timber, and $\frac{7}{8}$ in. will be thick enough, chamfered off to the outside. The front corner-pillar is spliced together with the side rails, and the side rails are halved to the back rail. The side rail toward the front end is left a trifle heavier, so that, after being glued to the front corner-pillar, the top corner can be rounded off slightly, as per drawing. If a seat with round corners is preferred, the side and back rails should then be made of one bent-piece, and, if possible, the front corner-pillars also. Turned sticks could then be introduced, and would make a desirable finish. To afford a contrast between the body and the seat, the latter should project over the body about 2 in. The molding of the body is level with the seat, and is finished off to $\frac{5}{16}$ in. at the front of the body; but as the joint of this molding is likely to show at the seat, it must be bridged over.

The body is built like a buggy body, with a slightly concaved back. An extra upright is framed into the body, connected by a horizontal rail with the upright near the rear end of the seat. This extra upright is introduced for the purpose of bolting the shaft adjuster. On the front of the body, the shaft works in a pivot, and the pivot is forged to a plate which is bolted to the side of the body. The front corner-pillar should consequently be left heavy for the reception of the bolts. A wooden dash is used, which is fastened to the body by two plates.

Dimensions.—Width of body on top, 29 in.; ditto bottom, 26 in.; ditto top of seat, 38 in.; and at bottom, 33 in. Height of wheels, 3 ft. 9 in., without tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{1}{4}$ in. diameter; front bands 3 in., and back bands $3\frac{1}{2}$ in. diameter; length of front bands, $1\frac{5}{8}$ in.; length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{16}$ in., round edge steel.

The springs are elliptic, 38 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, 4, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on top half, 4 in. Size of holes, $\frac{5}{16}$ in. Axle, 1 in. Track, 4 ft. 4 in., from out to out.

Finish.—Painting of body and seat, black; and running-gear, carmine, with a narrow stripe and two fine lines of black at a distance. Trimming, green cloth. The lazy-back is plain, and the cushion-top laid off in biscuits. The fall has a raiser around the edge, about $\frac{3}{4}$ in. wide, made of green cloth. Carpet, green, with black figures. Mountings, silver.

FOUR-PASSENGER PHAETON, WITH CURVED ENTRANCE AND CUT-UNDER.

(See Fashion Plate No. 52.)

A VEHICLE built after this design should prove an attractive addition to the already large family of phaetons. It will not only have a light appearance, but its actual weight will be moderate, which are two important considerations.

To reduce the weight to the utmost, it is necessary that the materials entering into its construction should be of the best quality, especially in the wood and smith departments, for it is obvious that inferior timber or iron, to perform its part, must be made heavier than could otherwise be required, which will not only increase the weight, but also lead to doubtful results. This reduction in weight can be effected to some extent in building the body, but a still more important gain can be made in the running-gear. On the body, a rocker $5\frac{1}{8} \times 1\frac{1}{4}$ in. will be sufficient; and a rocker-plate $2 \times 3\frac{3}{8}$ in. is able to bear the strain imposed.

The back corner-pillars are $1\frac{1}{4}$ in. square; and the other uprights, which are three in number, are $\frac{7}{8} \times \frac{3}{4}$ in. The horizontal bars on top of the body, which connect the uprights and the top cross-bars, should be made into a frame and the ends halved together. The shoulder for the cross-bars is to be on the top face. The uprights are then tacked to this frame. The frame-pieces are $1\frac{1}{8} \times \frac{3}{4}$ in. The panels for the body should not exceed $\frac{3}{8}$ in. in thickness. The bottom at the back and front is $\frac{3}{8}$ in. thick, and has two wooden straps running parallel with the rockers, to give the bottom the necessary strength; or, if preferred, two straps of heavy band-iron may be substituted in place of the wooden straps.

Stick seats are used—turned sticks are preferable. The corner-pillars of the seats are concaved, as shown, and should be made of bent wood. The top rail and front pillar of the seat are made of one bent piece. The seat frames are $\frac{11}{16}$ in. thick, lightened to the outside to $\frac{5}{16}$ in., and then rounded over. The rear corner-pillar is plated on the inside, the plate forming an angle at the bottom. This plate must not be made too heavy. It is rounded over on the outside. A corner-plate is placed on the inside, on top of the seat, to strengthen the side and back rails. If a canopy top is decided upon, when building the job, the above-mentioned corner-plate can be made available for the socket to receive the iron post of the top on both seats.

The body, as represented, is hung on side-bars, but it could just as well be suspended on elliptic springs, if preferred; and in the latter case, the gearing will have to be made longer, or the body hung higher, in order to gain the necessary room for the spring in front.

Dimensions.—Width of the body on top, 31 in.; ditto bottom, 28 in.; ditto top of seat, $40\frac{1}{2}$ in.; and at bottom, 35 in. Rocker-plates, $2 \times 3\frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Height of wheels in front, 3 ft. 6 in., and rear, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{8}$ in. Hubs, $4\frac{1}{4}$ in. diameter. Front bands, 3 in., and back bands, $3\frac{3}{8}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. diameter. Tire, $1 \times \frac{3}{16}$ in., round edge steel.

The front end-springs are $32\frac{1}{4}$ in. between the outside holes, with 3 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first three No. 3, and the last No. 4 steel. The rear end-spring is of the same length, and has the same set as the front spring. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. The front body-spring is $32\frac{1}{2}$ in. long, from out to out, with 4 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first plate No. 2, the next two No. 3, and the last No. 4 steel. The hind body-spring is the same length as the front one, with $4\frac{1}{4}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the other three No. 3 steel. Axles, 1 in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of body, black; and running-gear, dark blue, with a narrow stripe of black, and two fine lines of yellow. Trimming, blue cloth. The lazy-backs and cushion tops are laid off in diamonds, and a raiser of blue cloth is applied around the edges of the fall. Carpet, plain blue. Mountings, brass.

DEEP-SIDE FOUR-PASSENGER PHAETON, WITH DOORS.

(See Fashion Plate No. 53.)

THIS Fashion Plate represents one of the latest designs developed by Mr. Henry Timken, of St. Louis, who has kindly furnished us with a sketch and some of the principal measurements.

The body is hung on Timken springs, the reputation of which is so well established as to need no comment. The most noteworthy feature of the body is the introduction of doors, now generally omitted on vehicles of this class, the principal objection to them being that the lower door line comes too far from the bottom edge of the body. This cannot be prevented, as the body when loaded to its fullest capacity will settle considerably. If, for instance, the lower door line should be established only three inches from the bottom of the body, the settling of the body when freighted would prevent the door from opening, as the bottom of the door most certainly would come below the top face of the side-bar.

The toe-board bracket is raised considerably, and is spliced to the bottom sill, and strengthened by a plate on the inside. Otherwise the body is

very plain, and can be constructed at a moderate cost. The doors can be made either from plank sides or with framework. In the latter case, the door is covered with a thin panel. The bottom hinge is bent backward, which permits the door to open plumb. The four posts are made of iron, and fastened by a nut to plates projecting over the sides of the seat. On top the iron posts are opened, and form a corner-plate. One side is fastened against the top rail, and the other against the curve. The woodwork of the top should be made very light, to reduce the weight as much as possible.

Dimensions.—Width of body on top, 30 in.; ditto bottom, 27 in.; ditto seat on top, 39 in.; and at bottom, 33 in. Height of front wheels, 3 ft. 6 in.; and rear, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{3}{8}$ in. diameter. Front bands, 3 in., and back, $3\frac{1}{2}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The springs are of the Timken patent. Their length is regulated by the width of the side-bars, which are 33 in. from center to center. Width of steel for the front spring, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 2, the next two No. 3, and the last two No. 4 steel. Width of steel for the hind spring, $1\frac{3}{4}$ in. Number of plates, six, namely: the first two No. 2, the next two No. 3, and the last two No. 4 steel. Axles, $1\frac{1}{8}$ in., steel. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, black; and running-gear, dark green, striped with two stout lines of light green. Trimming, green cloth throughout. Two rolls are used on the lazy-back, and the biscuit finish for the cushion tops. Carpet, green, with black figures. Mountings, silver.

EXTENSION-TOP PHAETON, WITH STICK-SEAT.

(See Fashion Plate No. 54.)

NEW designs of Extension-top Phaetons seem always in demand, and particularly so at this time. Luckily, they admit of numerous variations in outline, and the accompanying Fashion Plate shows several of the latest of these variations.

A door is attached to this phaeton, similar to the one illustrated in our June number. On the rear seat the sides are provided with sticks, while the back is paneled up. The wheel-house has one continuous sweep, which harmonizes well with the rest of the body, wherein curved lines are predominant. Bent pieces are preferable for the arm-rails, and also for the corner-pillars; and $1\frac{1}{8}$ in. will be sufficient thickness for the corner-pillars on the inside, which can then be lightened to $\frac{7}{8}$ in. on the outside.

The door sets in from the outside of the molding $\frac{5}{16}$ in., but has to be made in the twist toward the front. A piece of ash is glued to the front rocker at the door, and is worked to nothing toward the front seat in a concavo-convex sweep. The rear seat projects over the rocker 2 in. A piece of ash or whitewood (the former being preferable) is glued under the seat, level with the outside of the seat-frame and extending to the wheel-house. This piece is tapered toward the bottom to $\frac{1}{2}$ in., forming a concavo-convex sweep with the seat. The molding is then worked on.

The rocker on each side consists of eight pieces, and inclines to the outside. The rear rocker is also contracted a trifle, the amount of which is easily ascertained when making the working drawing. The rockers, after they are framed together, will be covered with a thin panel to hide the joints. The sides and back of the front seat are made of solid wood, and fastened on top of the seat. The moldings on the top and front of the seat are glued and nailed on. The rear rocker is of considerable depth, to avoid giving the body-loops too much curve.

Dimensions.—Width of body on top of the middle pillar on the rear seat, 44 in.; ditto at the bottom, $39\frac{1}{2}$ in.; ditto at the back, on top, 39 in.; ditto at the bottom, 37 in.; ditto front seat, on top, $42\frac{1}{2}$ in.; ditto at the bottom, 38 in.; and at the dash, 32 in. Turn-under, 5 in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{1}{2}$ in. Nos. 16 and 14 screws. Height of wheels, front, 3 ft., and rear, 4 ft., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{3}{8}$ in. diameter. Front bands, 3 in., and back bands, $3\frac{5}{8}$ in. diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1 \times \frac{3}{16}$ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in.

The hind springs are elliptic, 38 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first plate No. 2, the next two No. 3, and the last No. 4 steel. Holes apart for the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of back panel, door panels, front seat, and sticks for the rear seat, dark green; and moldings, black, with no striping.

Running-gear, green, a shade lighter than the body-color, with a medium stripe of black and two fine lines of light green at a distance. Trimming, green goat-skin for the back and cushion of the rear seat, and green cloth for the cushion of the front seat, falls and head-lining. A smooth roll is placed around the top edge of the rear seat, and below this the back is laid off in medium-size squares. The same size squares are also used for the cushion tops. A raiser goes around the sides and bottom edge of the falls, made of the same material as the fall. Carpet, dark green, with light green figures. Mountings, silver.

WASHINGTON BAKERS' WAGON, ON THREE SPRINGS.

(See Fashion Plate No. 55.)

WHILE in Washington, D. C., lately, we visited the factory of Messrs. Andrew J. Joyce's Sons, No. 412 14th-street, and in the work-shop noticed a body for a Bakers' Wagon, just finished to order. We found the design novel and attractive, and expressed the wish that we might make it public. Permission was cheerfully given, and Mr. W. T. Lawton, foreman in the body-shop, kindly furnished us with a sketch, accompanied by the principal measurements, from which the accompanying Fashion Plate has been developed.

The body is plain, but, when painted in the right colors, will have an attractive effect. The introduction of a coupé-pillar in front is a great improvement over the straight pillar usual on this class of wagons, and it has already been generally adopted by our New-York wagon-builders. Another noticeable feature in this design is the dropping of the front. This is done principally to afford easier ingress and egress, which is an important feature in such a wagon, as the baker, in making his usual morning rounds, of course has to alight and re-enter his wagon many times.

The introduction of a wheel-house and Stanhope-pillar adds materially to the appearance of the job. The upper part of the body on the sides consists of white duck. The back is divided into two sections. The upper part is hinged to the top curve, and the lower one is hinged to the bottom cross-bar of the body. Both parts are securely fastened in the center, to avoid thieving.

The front seat is composed of a box, divided into two compartments, with lids for carrying rolls, etc. The cushion is also made in two halves. This will enable the driver to raise either one of the lids without inconvenience. Arrangements are made for a movable tray, about two-thirds up from the bottom, which is used for holding the bread. Slats are fastened to the pillars on the side, up to the arm-rail, about 2 in. wide, and beaded on the edge. They are ranged about 1½ in. apart. These slats are mainly for the protection of the canvas.

The running-gear is made in the usual manner. The shafts used are of the S. N. Brown (Dayton, O.) barouche pattern. These shafts permit the shaft-eye to be brought close to the wood, preventing the extension of the shaft-iron otherwise necessary.

Dimensions.—Width of body, 3 ft. 7 in., from out to out. Height of front wheels, 3 ft. 2 in.; and rear, 4 ft. Depth of rims, 1½ in. Size of spokes, 1⅜ in. Number of spokes, 12 and 14. Stagger of spokes, ½ in. Hubs, 5 in. diameter. Front bands, 3¾ in.; and back, 4¼ in. diameter. Length of front bands, 2 in. Length of hubs, 7½ in. Tire, 1½ × ⅝ in., round edge steel.

The front spring is elliptic, 37 in. long, with 10 in. opening over all. Width of steel, 1½ in. Number of plates, five, namely: the first two No. 2, and the last three No. 3 steel. Holes apart on the top half, 4 in. Size of holes, ⅜ in. The hind springs are elliptic, 35 in. long, from out to out, with 10 in. opening over all. Width of steel, 1⅜ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on top, 3½ in. Size of holes, ⅝ in. Axles, 1¼ in., Concord pattern. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the upper section of the body, cream color; the sign panel, carmine, with gold letters; and the body proper, dark maroon. Moldings, black. Running-gear, red, with a broad stripe and two stout lines of black. The cushion is of black-enameled duck. Mountings, silver.

PHYSICIANS' COUPÉ, WITHOUT DRIVING-SEAT.

(See Fashion Plate No. 56.)

MANY attempts have been made to develop a vehicle with stationary top, adapted for the use of physicians, but thus far they have commonly met with only limited success. About fifteen years ago, to the best of our memory, a carriage somewhat similar to the one represented in the accompanying Fashion Plate made its appearance in the streets of one of our Southern cities; but that was made without an octagon front, and the running-gear was coupled shorter than we show. The latter feature had the great disadvantage of causing the front wheel to cross the door line, which is a serious objection, thus necessitating the turning of the front running-gear and horse into the middle of the street to

enable the occupant to open the door. This serious objection is entirely avoided in the present design, which was originated several years ago by Mr. Henry Willits, of Chicago, and has now stood the test of time and abundant service.

The introduction of the octagon front is a great improvement. True, it requires longer coupling, but this is counter-balanced by the great advantage of opening the door without turning the front running-gear; and the space gained by the octagon front can be utilized by the addition of a child's-seat, which is often convenient.

The side lights on the rear quarters are stationary; but, if desired they could easily be made to drop, and in the latter case we would advise introducing a recess piece, to reach about 2 in. above the top line of the door, which will prevent the glass-frame from projecting too far above the opening in the upper quarter.

The shape of the coupé-pillar is produced by a molding only, but, in our opinion, the appearance of the body would be improved by constructing the octagon front in the same manner as for an ordinary Octagon-front Coupé. The extra work of the latter would, we think, be amply repaid by the improved appearance of the vehicle.

The construction of the body is similar to that of a Four-passenger Rockaway. The rear bottomside can be made light, as the hind body-loops are bolted to the rockers, and ½ in. projection of the bottomside over the rockers at the corner-pillars will be sufficient.

The body is hung on an elliptic spring in front, and on platform springs in the rear. The perch is made of bent wood.

Dimensions.—Width of body at the hinge-pillar, 48 in.; ditto at lock-pillar, 43 in.; ditto at back pillar, 40 in.; and at front pillar, 39 in. Turn-under, 3 in. Rocker-plates, 2 × ½ in., fastened with 1½ in. No. 16 screws. Height of wheels, front, 3 ft., and rear, 4 ft., without the tire. Depth of rims, 1⅝ in. Size of spokes, 1¼ in., heavy barrel. Number of spokes, 12 and 14. Stagger of spokes, ⅜ in. Hubs, 4⅜ in. diameter. Front bands, 3 in., and back bands, 3⅝ in. diameter. Length of front bands, 1¾ in. Length of hubs, 7 in. Tire, 1 × ¼ in., round edge steel.

The front spring is elliptic, 37 in. long, with 9 in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. The rear springs are platform. The side springs are 36 in. long, from out to out, with 8 in. opening over all. Width of steel, 1⅜ in. Number of plates, four, namely: the first plate No. 2, the next No. 3, and the last two No. 4 steel. The cross-spring is 37½ in. long, from center to center, with 4½ in. arch over all. Width of steel, 1⅜ in. Number of plates, four, namely: the first one No. 2, the next two No. 3, and the last No. 4 steel. Axles, 1⅝ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of lower quarters, back and door panels, dark green; and upper quarters, back panel and moldings, black. The moldings are striped with a fine line of light green. Running-part, green, a shade lighter than the body, and striped with a heavy line of black. Trimming, green cloth throughout. The cushion tops and back are laid off in biscuits. No broad-lace is used around the fall and top rail. A plain raiser is made around the fall, and a valance, with a welt of cloth around the edge, for the top rail. Carpet, green, with black figures. Mountings, silver.

ENGLISH-QUARTER COACH, WITH EIGHT LIGHTS.

(See Fashion Plate No. 57.)

MARKED changes in the general appearance of a coach or other vehicle belonging to the class termed "heavy work," are not so frequent as in the case of medium or light work; and since the adoption of the English-quarter as a standard style, the variations in outline have been insignificant. The present tendency is merely to give more curve to the back corner-pillar, and more flare. The bottom in the center is also given somewhat more curve. On the boot, the bottom line is changed in our drawing from a regular sweep to a more flattened surface in the center, and rounded off at the ends.

Side lights are not, as a rule, placed in the back quarters. The majority of the coaches now building are either paneled up both front and back, or made with lights in the front only, and paneled up in the rear. In the accompanying drawing, lights are placed in the front and rear of the sides, and we consider this arrangement in harmony with the rest. It will be noticed that the bottom corner of the side lights, nearest the corner-pillars, has a short curve, which is an improvement over the sharp corner formerly in use. It is fashionable now to make glass-frames similar to those used for the doors, and to hold these glass-frames in place by moldings, which are fastened against the inside of the panels by round-headed screws, and the moldings are covered with cloth. This finish requires somewhat more work than when the glass is fastened direct against the inner frame. Moldings similar to those first described will hold the glass in position. Bent wood is used for the lower part of the corner-pillars,

and extends about 6 in. above the arm-rail, where it is spliced to the upper part of the corner-pillars. The moldings on the doors are glued on; and, after being cleaned off, a few chair-tacks are driven in.

The running-gear is made in the usual manner. Wooden beds are used both top and bottom, and swept 3 in. forward. The steps are of the gridiron pattern.

Dimensions.—Width of body at the lock and hinge-pillars, 51 in.; ditto at the front and back, 43 in.; and ditto at the toe-board, 34 in. Turn-under, $3\frac{1}{2}$ in. Rocker-plates, $3 \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. o. 18 screws. Height of wheels: front, 3 ft. 2 in.; and rear, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $6\frac{1}{4}$ in. front, and $6\frac{1}{2}$ in. rear. Front bands for front hubs, $3\frac{3}{4}$ in., and back bands, $5\frac{3}{8}$ in. diameter. Front bands for rear hubs, 4 in., and back bands, $5\frac{5}{8}$ in. diameter. Length of front bands, 2 in. Length of hubs, 8 in. Tire, $1\frac{3}{8} \times \frac{7}{8}$ in., round edge steel.

The front springs are elliptic, 39 in. long, from out to out, with $10\frac{1}{2}$

SYRACUSE ONE-HORSE TRUCK.

(See Fashion Plate No. 58.)

We are indebted to Mr. Geo. W. Kerr, of Bridgeport, Conn., for the pen-and-ink drawing from which our engraving of this truck was reproduced by the photo-plate process. The vehicle came to his notice during a recent business trip to Syracuse, N. Y., and the construction of the front carriage-part differed so materially from others he had seen, that Mr. Kerr was thoughtful enough to secure a sketch of it for the benefit of his fellow-readers of *The Hub*.

The body or frame of this truck differs very little from those generally used. The main difference is in the second rung from the front, which is made very wide at the bottom part, while the top part is not heavier than the remainder of the rungs. A mortise is put through the seat-board the size of the upper part, and the seat-board slips over, resting on the shoulders. To keep the board from splitting, cleats are fastened across the ends. This board is for the driver to sit on when the truck is not

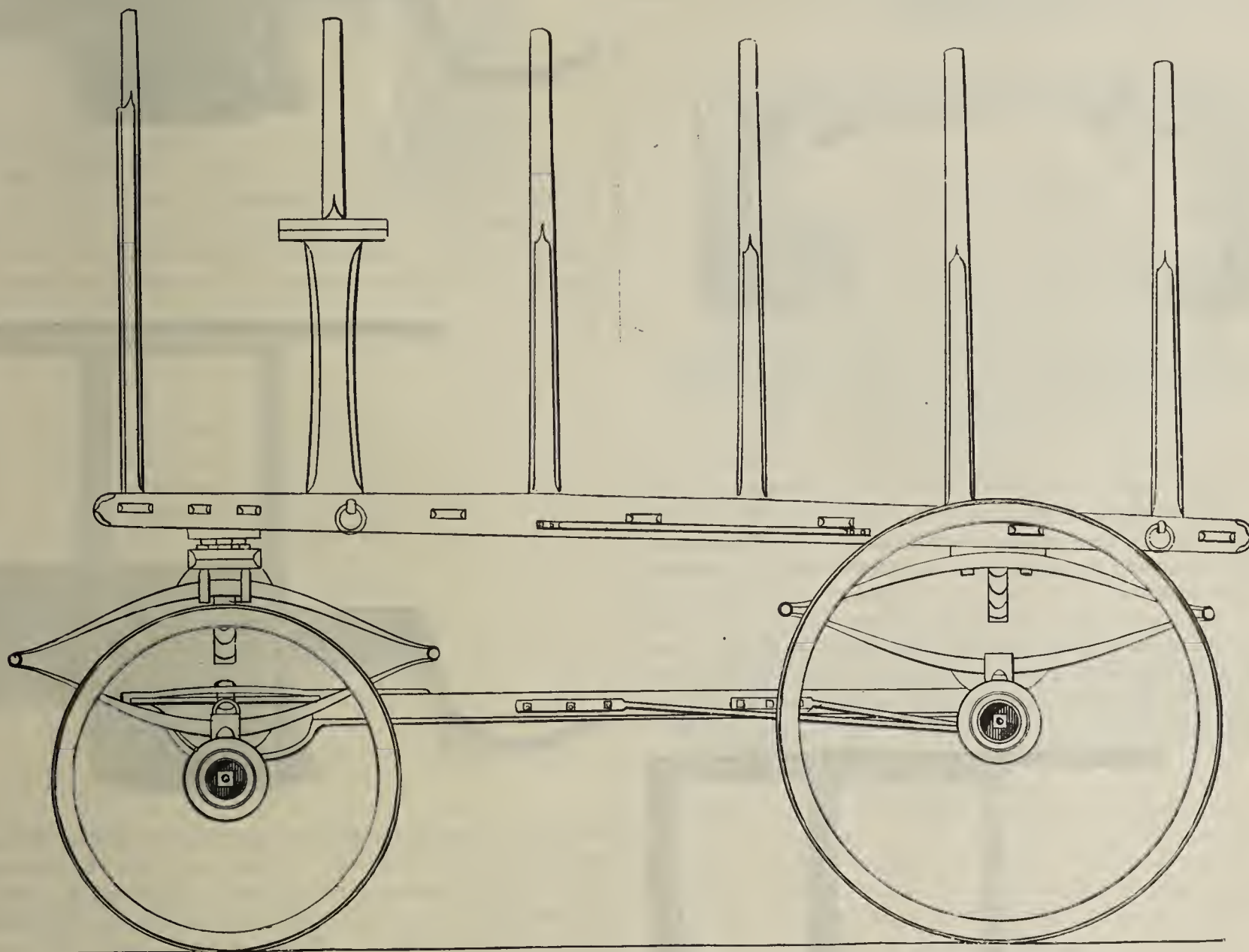


PLATE No. 58. SYRACUSE ONE-HORSE TRUCK.—SCALE, THREE-QUARTER INCH TO THE FOOT.

(See description on this page.)

n. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first two plates No. 2, the next two No. 3, and the last one No. 4 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{3}{8}$ in.

The rear springs are platform. The side springs are 42 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{3}{8}$ in. The cross-spring is $39\frac{1}{2}$ in., from center to center, with 5 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first two No. 2, and the next two No. 3 steel. Axles, $1\frac{3}{8}$ in., Colliage patent. Track, 5 ft., from out to out.

Finish.—Painting of lower quarters and door panels, dark green; and upper quarters, boot panels and moldings, black; with no striping on the moldings. Running-gear, dark green, with a broad stripe and two medium lines of carmine at a distance. Trimming: for the lower backs and cushion tops, green goat-skin; and for the lower and upper quarters, upper backs, doors, head-lining and driver's-cushion, green cloth. The upholstering for the back consists of a row of small squares on top, a large row of piping in the center, and medium-size squares at the bottom of the back. The piping pattern will answer for the cushion tops. Broad-lace, of a plain pattern, is used for the facings of the cushions, around the edges of the falls, the top rail and cushions. The trimming for the driver's-seat is plain. Carpet, green, with black figures. Mountings, silver.

loaded to its full capacity; but if the truck is loaded to the front rung, then the seat-board is taken off and slipped over the front rung, where it is entirely out of the way. The front rungs or standards are connected by a board, and this board acts as a rest for the seat-board. All the rungs, with the exception of the front one, are made movable.

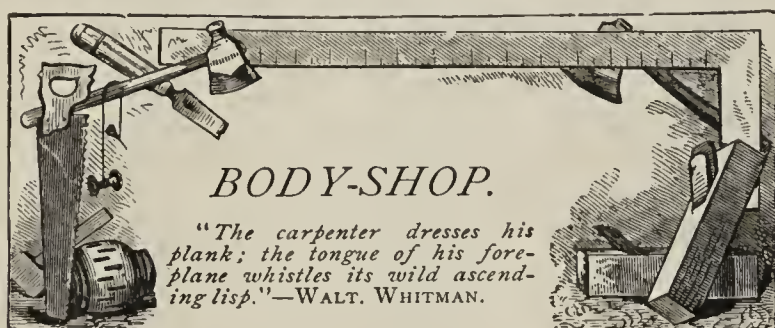
The chief novelty of this design, as above stated, is in the running-gear. The springs on the front gear are clipped, as usual, on top of the axle. The clip is of one piece, the thickness of the spring, and from there diverges into four branches, which are connected in the usual way by clip-bars. The perch is fastened to the axle instead of to the bolster, and reaches within 6 in. of the axle. The connection with the axle is effected by two plates, as the drawing shows, the connection of the two plates in front forming a groove for the fifth-wheel. Another groove is produced at the back end by the top plate and perch, thus insuring a steady motion of the fifth-wheel. There is a second fifth-wheel of smaller dimensions between the top spring-bar and the body-bar (see drawing). Cross-springs are bolted under the top spring-bars both front and back, and these springs will greatly assist the side-springs in carrying heavy loads, for if the side-springs have a tendency to settle, the cross-spring will touch the top of the bottom half, and thus reinforce the carrying capacity of the side-springs. All further features are sufficiently indicated in the drawing, which has been carefully made to the scale of $\frac{3}{4}$ in. to the foot.

Dimensions.—Width of body, 50 in., from out to out. Height of front

wheels, 2 ft. 5 in.; and rear, 3 ft. 1 in., without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{3}{4}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{1}{2}$ in. Hubs, 7 in. diameter. Front bands, $5\frac{1}{4}$ in.; and back, 6 in. diameter. Length of hubs, 9 in. Tire, $1\frac{3}{4} \times \frac{1}{2}$ in.

The front springs are elliptic, 36 in. long, from out to out, with 13 in. opening over all. Width of steel, 2 in. Number of plates, seven, namely: five No. 2, and two No. 3 steel. The length of the cross-spring is determined by the width of the springs, which are brought as close as possible to the collar-washer of the axle. By this method the springs are prevented from striking the perch before the wheel. Set of cross-spring, over all, 7 in. Width of steel, 2 in. Number of plates, six, namely: the first four No. 2, and the last two No. 3 steel. The hind springs are elliptic, 37 in. long, from out to out, with $10\frac{1}{2}$ in. opening over all. Width of steel, 2 in. Number of plates, eight, all No. 2 steel. The cross-spring is 48 in. long, from out to out, with 6 in. set over all. Number of plates, seven, all No. 2 steel. Axles, $1\frac{5}{8}$ in. Track, 5 ft. 2 in., from out to out.

Finish.—Painting of the body, dark brown, with a broad stripe of black, edged with a fine line of yellow. Running-gear, yellow, with a broad stripe and two medium lines of black at a distance.



HINTS FOR BODY-MAKERS AND DRAFTSMEN.

X. FOUR DESIGNS OF COUPÉ-ROCKAWAY BODIES.

THE Coupé-rockaways of to-day present a favorable contrast to those constructed ten or fifteen years ago. They are manufactured now in many sizes, and with many different modes of suspension. The majority, however, are hung on three springs. In the outlines of the bodies, the principal changes are at the front, especially in the shape of the wheel-house; while at the rear of the body the changes consist mainly in the flare of the back corner-pillar, and in the distance from the bottom of the body to the bottom of the quarter. The shape of the side lights can also be varied, as is shown in our drawings. Stationary lights are used invariably in this city, but drop lights are preferred by the trade further south.

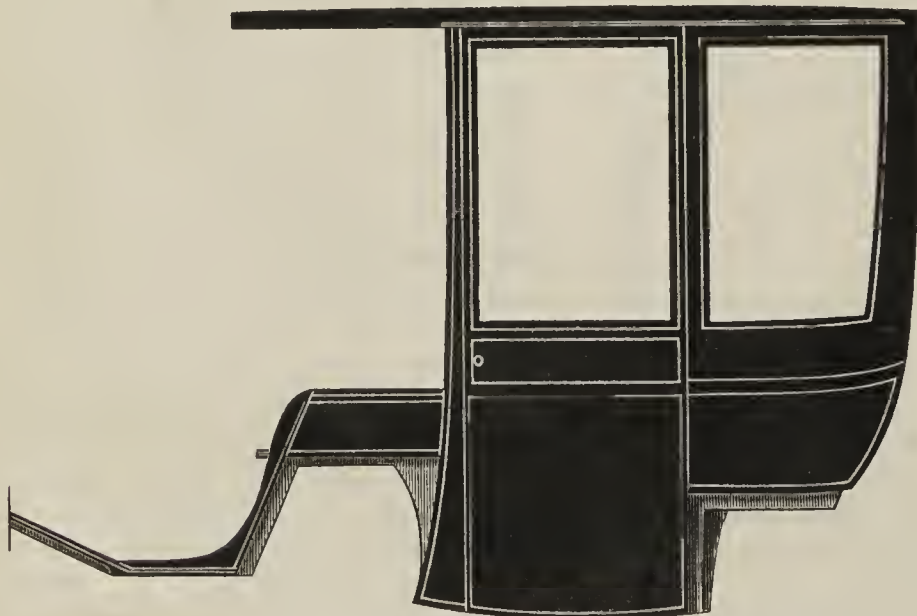


FIG. 1.

Fig. 1 represents a body of the smaller class, and the quarter and front seat are shortened as much as possible, but still afford ample seat-room. The front seat panel is mortised into the coupé-pillar, and can be made of whitewood. For this body we would recommend a running-gear with three springs. Height of body from the ground, 28 in. Height of wheels, front, 3 ft. 2 in., and rear, 4 ft.

Fig. 2 shows a body of larger dimensions than Fig. 1, with the exception of the door. The outline of the quarter glass at the rear bottom corner differs from Fig. 1, and is an improvement over the four-cornered glass. The lower quarter is higher and longer than on Fig. 1. There is also an increase in the length of the front seat. The bottom molding of the rear quarter extends to the door. The molding on the rear standing-pillar is worked on. The rear quarter being of good depth, a child's-seat can be attached to the front seat without causing much inconvenience. Height of body from the ground, 25 in. Height of wheels, front, 3 ft., and rear, 4 ft.

Fig. 3 shows a medium-sized body. The rear quarter and door are of the same size as on Fig. 2. The driver's-seat is 1 in. longer, thus giving more space for the wheel-house, and affording an opportunity for producing a better sweep. The shape of the side light on the rear quarter is similar to that on Fig. 2, excepting that the curve formed at

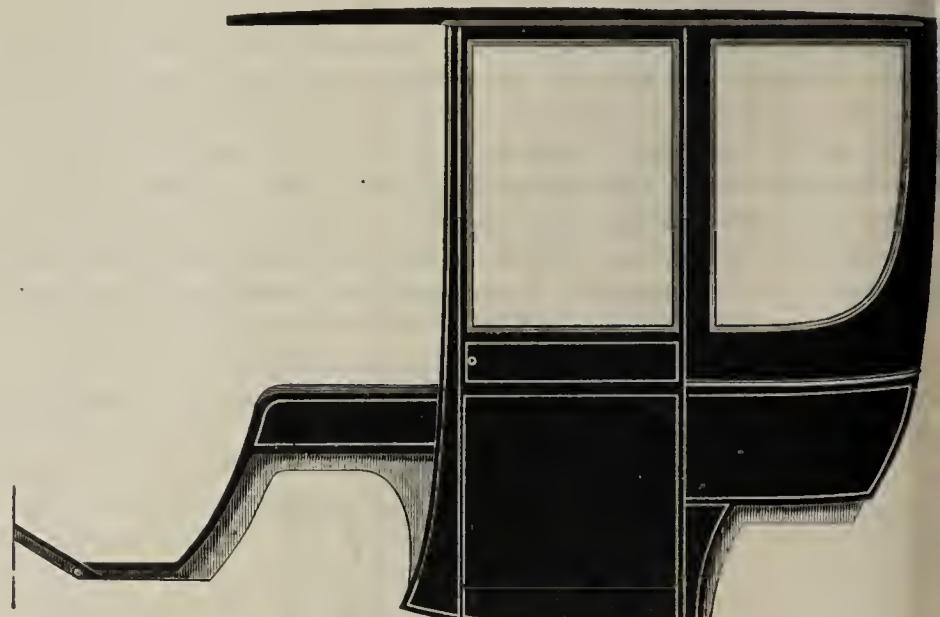


FIG. 2.

the bottom corner is shorter. The sides on the front seat are made of whitewood, like Fig. 1. Whitewood is used in most every instance for the front seats. They are framed $\frac{5}{16}$ in. in from the outside of the coupé-pillar. The bottom of the wheel-house can be made in two ways, namely: by following the sweep of the wheel-house (which will give

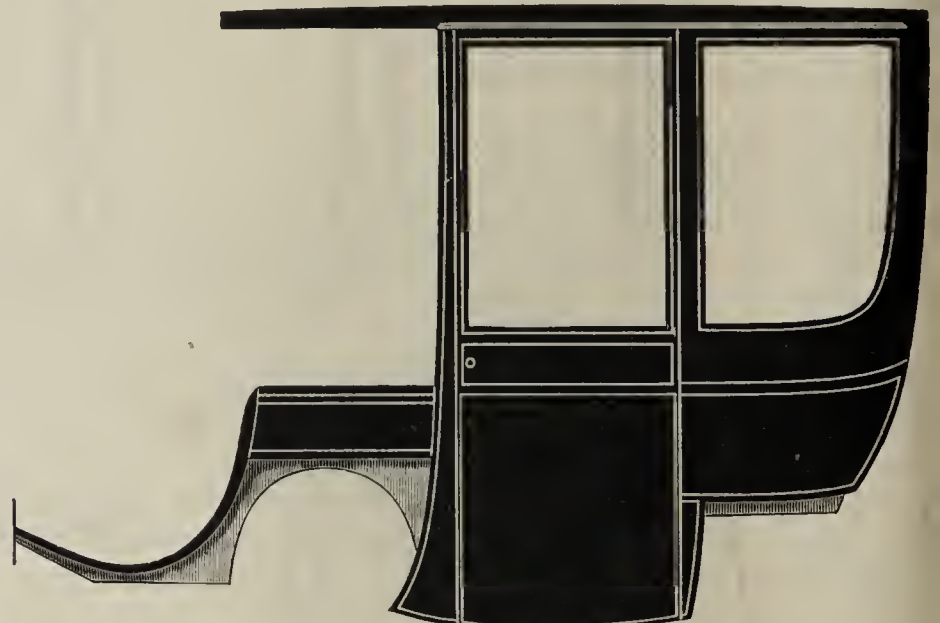


FIG. 3.

the bottom, when painted, a fine finish), or in three distinct parts, the seat-bottom of the front seat forming one part. The front part of the wheel-house is fastened at the bottom to the bottom bar, and on top to the seat-rail. The same method will answer for the back part of the wheel-house bottom. Height of body from the ground, 25 in. Height of wheels, in front, 3 ft., and rear, 4 ft.

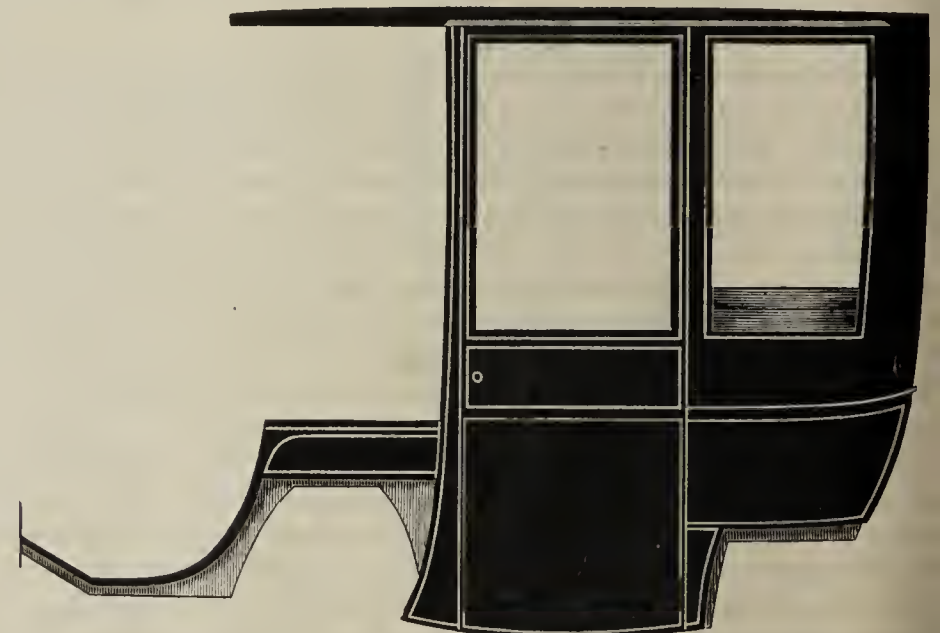


FIG. 4.

Fig. 4 shows another medium-sized body. The full length of this body is 2 in. less than in Fig. 3. The difference in the length is obtained at the rear quarter and driver's-seat, the width of the door being the same as on Fig. 3. The sides of the driver's-seat are lower than on the preceding designs, which is also the case with the lower rear quarter. Another feature which distinguishes this body from the preceding three

that this body has drop lights in the back quarters, while the side passes on Figs. 1, 2 and 3 are all stationary. To make the opening for the drop light in the upper quarter as large as possible, the space between the bottom of the top door-piece and top face of the rear bottomsides may be divided in such a manner that the glass-frame, when dropped, projects above the fence-piece several inches. To arrive at such result, and bring the opening in the upper quarter panel on a line with the top of the door, a recess-piece will be necessary, as without the glass-frame, when lowered, would project over the fence 10 in., which is reduced to 3 in. when made as represented by the drawing. Height of body from the ground, 26 in. Height of wheels, front, 3 ft., and rear, 4 ft.

All such bodies as those above should have considerable side swell, not less than $3\frac{1}{2}$ in.; and, to avoid the use of too heavy timber, the rockers have to be contracted and inclined. ALBERT KEHRL.



CASE-HARDENING FIFTH-WHEEL BEARINGS.

A SUBSCRIBER at Newport, R. I., complains that he cannot get the bearings of fifth-wheels hard enough to wear well,—that is, they soon wear down and cause the fifth-wheel to rattle; and he concludes by asking us to inform him of some ready means of case-hardening the same.

To case-harden the bearings of a fifth-wheel requires about half an ounce of ferro-cyanide of potassium. Pulverize this well, and add half a teaspoonful of common salt, and about two grains, by weight, of pulverized borax. Place this mixture on a metal substance or flat stone; then heat the part to be hardened, and place it in the mixture, and allow it to absorb all it will until the red heat has expired. Then re-heat to a cherry red, and immerse the bearing in water to half the thickness of the bearing, and hold in that position until the red-hot portion out of the water becomes black.

This process will harden the bearing surface, and allow the backing on the other part to remain nearly as tough as before. The hardened portion will be about one-thirty-second of an inch deep. N. Y. S.

VARIATION OF TRACK CAUSED BY RESETTING TIRES.

MR. F. V. B., of Toronto, Canada, under a recent date, writes the following significant letter:

EDITOR OF THE HUB—DEAR SIR: I am in a quandary. I will give you a full history of the case, with all its surroundings, and will be pleased to have you explain the whys and wherefores in the pages of your valuable journal.

We do a great amount of repairs, including considerable tire setting. We always make a practice of trying the set of the axles the first thing; when, if not right, we immediately make them so. Then we go on and reset the tires, if necessary, and make such other repairs as are necessary before sending the job to the paint-shop.

Now, we frequently find, when the job is ready for delivery, that the track is all awry, and we are unable to account for this. Perhaps your experience, or that of carriage-builders in your city with whom you come in contact, will enable you to explain the cause, and also give the proper remedy by which this devilry in axles may be overcome.

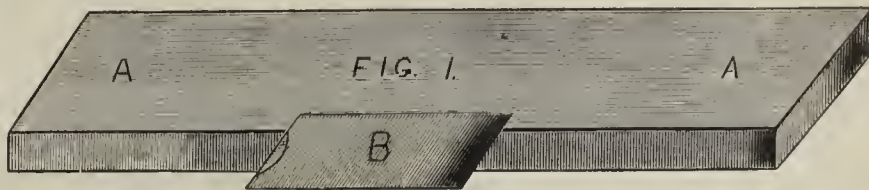
ANSWER.—We have received during the past few months several inquiries similar to the above, some of which have been answered by mail; but as others still unanswered remain in our pigeon-holes, we will now treat the subject publicly, and thereby give the trade the benefit of information we have gained from our city friends.

It is of course quite proper to try the set of the axles, and, if found wrong, to set them aright. There is, however, a proper time to test this question, which is after the tires have been reset and the wheels properly prepared. The disposition of the average wheel, as it increases in age, is to increase more or less in dish each time the tire is reset, and whether this increase be little or much, its influence is at once felt in the set of the axles. It has, however, no influence on the gather of the axles. The increased dish of the wheels produces an increase in the width of the wheels where they come in contact with the earth. The remedy for this is to exercise all possible care in resetting the tires so as to have the increase in dish as trifling as possible. When this is done, then set the axles properly.

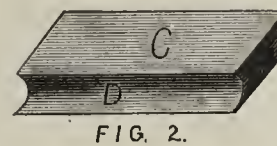
HOW TO WELD ON FLANGES OR LUGS.

G. K. S., writing from Langdon, N. H., says: "Please illustrate a simple method for welding laps of good width on to bars of a similar size. I don't mean a common T, but a long and wide lap, say four or more inches."

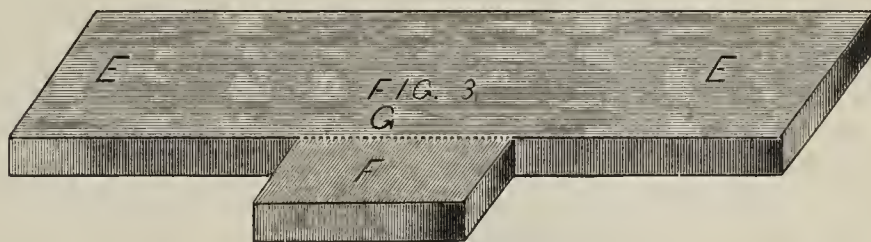
We take it for granted that our correspondent means, by "laps," what are usually known in the smith's parlance as "flaps," "flanges" or "lugs," and we so explain.



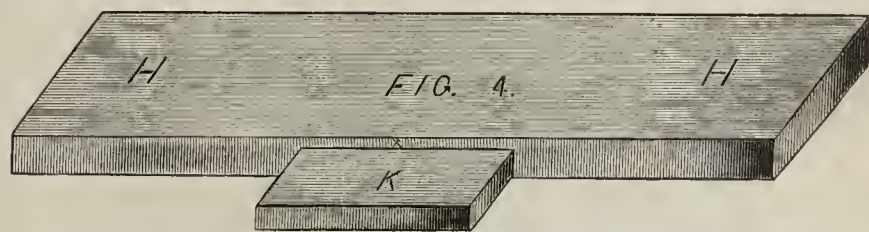
Let Fig. 1 represent a section of a bar of iron $2\frac{1}{2} \times 1$ in., with A A the ends. We heat this, and set in with a small fuller first, and afterwards fuller out with a large fuller, and form the scarf at B.



We next take a piece of the same sized iron, as per Fig. 2, C being the bar, and fuller down first with a small and afterwards with a large fuller as at D, and form the scarf the same as at B, in Fig. 1. If the fire is large enough, try and weld all in one heat; but if the heat in both pieces cannot be raised in one fire, then heat each piece in a separate fire and place the two scarfed parts together, tapping lightly with a hand-hammer until the parts cohere. Then come down with the sledge, and hammer with vigorous blows until a thorough union is made.



Before the welding power of the heat is lost, set in and weld the flaps in the corners with the small fuller and hand-hammer. Dress the whole up with setting and flattening hammers, and we thus get, as a result, what is shown in Fig. 3, E E representing the ends corresponding with A A in Fig. 1, and F being the "flange," "lug" or "flap."



If we wish to have F, the flange, thinner than E, then fuller in at G, as per dotted line, with a small fuller; heat E to a light welding heat, and draw down with a hammer, having the fullered side undermost and E E parallel with the inner edge of the face of the anvil. Then dress up to proper size and shape, with flattening and setting hammers. We thus get, as a result, Fig. 4, wherein H H represent the ends as per E E, Fig. 3; K, the flange; and X showing the edge of the main bar above the flange K.

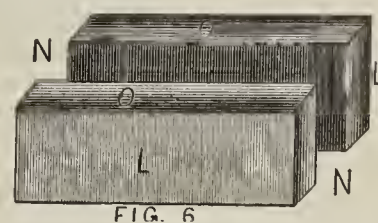
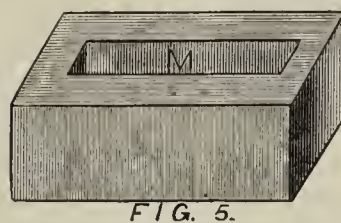


Fig. 5 represents a handy block tool to use in forming the edge X, by inserting the flange in the hole M. This tool is easily made by taking two pieces of iron, of the proper size, as per L L, Fig. 6, and welding on steel at O O, the upper surface next to the two pieces being of sufficient size to give the proper sized hole at M, in Fig. 5; and then weld in at N N. A little dressing with the file will then complete the tool.

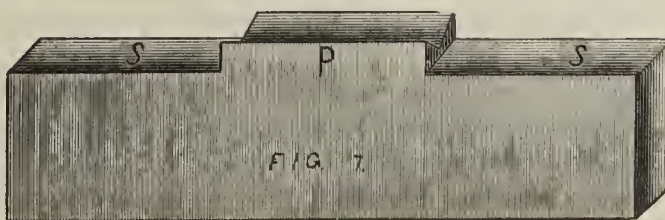
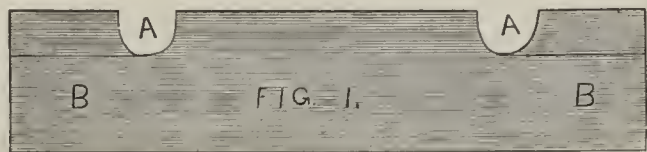


Fig. 7 shows the end of bar S S. At P, the bar is split and worked out with the fuller, and a recess is made for Fig. 8, as formed at R, for insertion in P. In welding, have the recess P uppermost; then insert R in the same, and come down with quick blows; then weld the insides, and treat as above described. S.

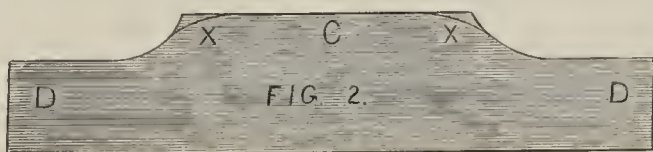
HOW TO MAKE STEEL RUB-IRONS.

MR. STEPHEN POINDEXTER, writing from one of the interior towns of Michigan, asks us to explain to him the "simplest plan to get out steel wear-irons," which we cheerfully do, as follows:

Take a piece of either spring or tire steel, two inches wide and one-quarter inch thick, and fuller in as per A A, Fig. 1, leaving the space between A A about five or five and a half inches long.



Then cut out the end corners, as per short lines B B, which will leave the finished plate as per Fig. 2, wherein C represents the rubbing-plate, and D D the ends to which are welded the other portions of the body hanging iron.



The above method gives a rounded finish at the ends of the wearing portion. The ends of C may be further improved by removing the ends, as per the dotted line X X.

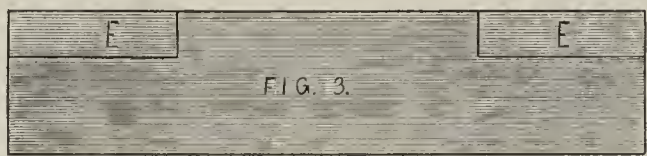
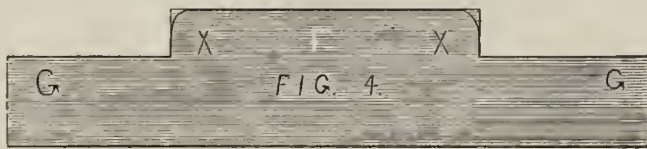
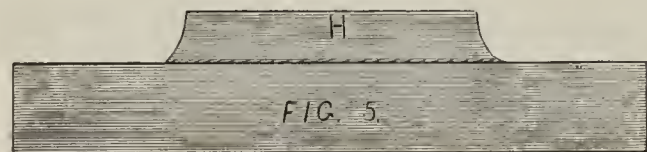


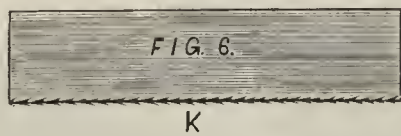
Fig. 3 shows another plan. Take steel as before, and remove the corners with a chisel, as per lines E E, which will give a finished plate as per Fig. 2; F, Fig. 4, being the wearing portion of the plate, and G G the ends to which are welded the other portion of the body hanging iron. The corners of F may be rounded off, as in Fig. 2, per lines X X.



Where steel of the proper size is not at hand, this difficulty may be overcome by preparing the steel as shown in Figs. 5 and 6. To do this, take iron one inch wide by one-quarter inch thick; upset about five and a half inches, as much as will waste in welding; and then scarf with a small fuller, as at H, Fig. 5.



Next take a piece of steel one inch wide and one-quarter of one inch thick, as per Fig. 6, and scarf it as at K, and rivet it on to Fig. 5 at H, with one rivet at the center. Take a borax heat, weld at the center first, and weld the outer ends afterward; and you thus get the same result as shown by Figs. 2 and 4.



In placing the rub-iron on the body, there ought to be two bolts within the length of the wearing portion. After the iron is finished and ready to be put on, then heat the outer edge to a cherry red and cool slowly, which will give it a better wearing surface. It may be necessary to subsequently draw the iron portion a little, because of the shrinkage caused by hardening.

WELDING FLUXES.

WE do not know that the following welding fluxes are any better than the welding material used generally by watchmakers and silversmiths, but they have been patented in England, so we publish them.

1. A welding material composed of 25 parts, by weight, of borax, a paper or metallic support, and 60 parts of metallic filings of the same nature as the metals to be welded, and made by first melting the borax; second, immersing the support in the fused borax; third, smoothing the same by passing it through pressure rollers; fourth, sprinkling its two faces with the metal filings; fifth, heating the sheet in an oven; sixth, passing through pressure rollers.

2. A welding material composed of borax and of metallic filings of the same nature as the metals to be welded, mixed with the fused borax,

and in the proportions substantially as set forth, and then rolled out into sheets of about one-sixteenth of an inch thick.

3. The welding sheets coated with a layer of gum lac or other appropriate varnish.

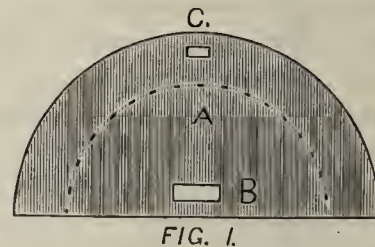
The following compound has been frequently offered as a trade secret. Take copperas, 2 oz.; saltpeter, 1 oz.; common salt, 6 oz.; black oxide of manganese, 1 oz.; prussiate of potash, 1 oz. Pulverize these ingredients and mix with them 3 lbs. of nice welding sand.—*Scientific American*

HOW TO MAKE FIFTH-WHEEL FORMERS.

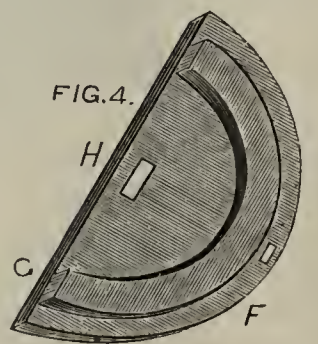
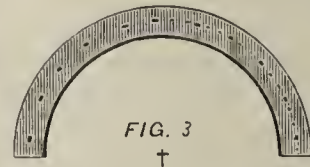
ONE of our subscribers in Western Virginia wants to know if there are "any models or forms in the market for bending fifth-wheels." We take it that he means formers for bending the fifth-wheel upon the edge so as to form a circle or its segment, and we so answer him.

We know of no such appliances in the market or on sale, and the average carriage shop seldom has conveniences of this kind, though why this is so, we are unable to suggest, as they are certainly very useful. Factories which make a specialty of such forgings for the market have formers for all the sizes of fifth-wheel made, and we think it would be economical for every carriage shop making a specialty of good work to have fifth-wheel formers instead of bending by the old method, which latter requires three or four heats to accomplish what may be done in one heat with the proper tools.

A cheap method of making such a former is as follows: Take a piece of boiler-plate, say $\frac{3}{8}$ inch thick; and, if the fifth-wheel is made of iron, 1 inch wide, and the fifth-wheel is to be 14 inches, inside diameter, have the plate large enough to true up to a circle of 16 inches, outside diameter. It may be left a full circle, or be cut off on one side two or three inches beyond the center, as per Fig. 1, A being the plate; and B the square hole in which to rivet the stud, Fig. 2, D filling up the hole and being riveted in; and E, the projecting portion of the stud with which to hold the plate or former in the vise when in use.

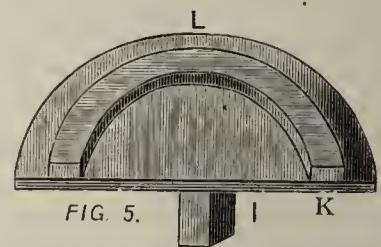


C, Fig. 1, is a hole to admit the insertion of the pin on the top upper portion of the fifth-wheel when a slot wheel is used. The holes forming a half-circle on the plate are for the purpose of riveting on the piece Fig. 3, which is made of $1 \times \frac{3}{4}$ inch iron, the outer circumference of which is equal to the inner circle of the fifth-wheel.



When riveted on, it is as shown by Fig. 4, F being the plate, G the forming circle, and H, hole for the stud.

When all completed, it is as per Fig. 5, I being the stud for holding in the vise, L the projecting portion of the plate, and K the former.



Heat the fifth-wheel the whole length, insert the pin in the hole C, Fig. 1, and with tongs pinch up the wheel to the former and fit when cold.

For larger circles, a cast-iron plate is used in some factories, as per Fig. 6, M N O showing the places for forming the circle.

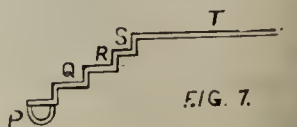
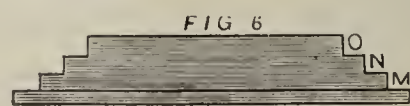


Fig. 7 is an outline of a lever secured to the plate by a hinge, P. R and S are similar to M N O, Fig. 6, and T is the hand part. Heat and pinch up as stated above. One or two trials will enable you to work the same with precision and profit.

WILL A GAS TIRE-HEATER DO IT?

LIVERPOOL, ENG., July 16, 1884.

EDITOR OF THE HUB—DEAR SIR: We are in receipt of your letter inclosing circular concerning gas tire-heaters, for which please accept our best thanks. We shall look out for August *Hub* to learn further particulars about them. We do not think the heat developed by the gas would be great enough to expand a tire, say $1\frac{1}{2} \times \frac{1}{2}$ in., 4 ft. diameter, to the extent of from $\frac{5}{8}$ to $\frac{3}{4}$ in., which we find is not any too much "nip" for wheels running about Liverpool, where the streets are paved with the hardest blue granite sets, which soon etches the tires with the continual hammering they get. Thanking you for the trouble you have been put to in answering our inquiry, I remain
Yours respectfully,
SIMMONS & HOOPER,
Per G. Simmons.

Mr. S. G. Reed, the inventor and manufacturer of the gas tire-heater above referred to, replies as follows to the questions of our Liverpool correspondents:

EDITOR OF THE HUB—DEAR SIR: When I adopted the mode of placing rubber under tires, I had much trouble to expand the iron sufficiently, excepting with gas. This heats evenly, and expands more than is possible in any other way, as Thomas Goddard, the old and noted carriage-maker, of Boston, and others will testify,

Messrs. Simmons & Hooper certainly expand their tires more than is usual here, and I therefore advise them to adopt the compound blast as used by the Abbot-Downing Co., of Concord, N. H., who heat many $1 \times \frac{1}{2}$ in. tires, and give an inch draft, and some $1\frac{1}{4} \times 2\frac{3}{4}$ in., with over an inch draft, while to their lighter tires they give even more draft than Messrs. S. & H. do. There is no question but that they can expand all they require, and without a full flow of gas.

I think the flow of gas and results as experienced by the New-Haven Wheel Co. and Henry Killam & Co., both of New-Haven, Conn., are about the average for tires from $\frac{3}{8}$ to $\frac{3}{4}$ in. thick, and the following is an exact statement from each of these firms, given some eighteen months ago, after one and two years' use.

The New-Haven Wheel Co. say that their average time for $3 \times \frac{1}{2}$ in. tires is 12 minutes; for $1\frac{1}{2} \times \frac{1}{2}$ in., 3 minutes; for $1\frac{1}{4} \times \frac{3}{8}$ in., 1 minute; for $1 \times \frac{1}{4}$ in., $\frac{1}{2}$ minute; for $\frac{7}{8} \times \frac{5}{16}$ in., $\frac{1}{4}$ minute; and $\frac{1}{2} \times \frac{1}{8}$ in., 5 seconds.

Henry Killam & Co.'s report is as follows: for $1\frac{1}{2} \times \frac{1}{2}$ in., $3\frac{1}{2}$ minutes; $1\frac{3}{8} \times \frac{7}{16}$ in., 2 minutes; for $1\frac{1}{4} \times \frac{3}{8}$ in., $1\frac{1}{4}$ minute; $1\frac{1}{4} \times \frac{1}{8}$ in., 1 minute; $1\frac{1}{8} \times \frac{5}{16}$ in., $\frac{3}{4}$ minute; and $1 \times \frac{1}{4}$ in., $\frac{1}{2}$ minute.

The Concord Co.'s report is as follows: for $1\frac{1}{4} \times 2\frac{3}{4}$ in., 12 minutes; $\frac{3}{4} \times 2\frac{1}{4}$ in., 6 minutes; $\frac{5}{8} \times 2\frac{1}{4}$ in., 4 minutes; and for $\frac{1}{2} \times 2\frac{3}{4}$ in., $2\frac{3}{4}$ minutes. They put on 32 tires, $\frac{3}{8}$ in. thick $\times 1\frac{1}{4}$ in., in 21 minutes, giving $\frac{1}{4}$ in. draft. Tires $1\frac{1}{4}$ in. thick they give over $\frac{1}{2}$ in. draft, and the $\frac{3}{4}$ in. tires, $1\frac{1}{2}$ in. draft. I think they use too much heat, but they use 4 and 6 men, and say they save in time. They propose to put in the heater at their New-York-shops as soon as they alter their buildings.

As soon as the Boston Fire Department gets its new shops ready, I shall put one in for them, just like these, on my own risk. All I warrant for those sent abroad is that the apparatus shall be made as perfect as either of the above named. I can hardly do more, for the reason that workmen often oppose such improvements at first.

The Fire Department's tires are 1×3 in. and $\frac{3}{4} \times 2\frac{1}{2}$ in. I put one into the Philadelphia Fire Department's repair shops, of the less improved kind, years ago. The foreman writes that they long since removed their brick furnace, and he never wants to see another furnace as long as he can have gas.

The price of the compound heater is \$200. Brewster & Co., of New-York, have one; and while they use water gas and the heater is not set up to suit me, yet they say it has earned them \$1,000. I send all necessary instructions, and furnish all ready to connect with the wind and gas pipes.

Yours truly,

S. G. REED.

BOSTON, MASS.

MALLEABLE CAST-IRON.

MALLEABLE cast-iron has become an important factor in the carriage smith-shop, and its peculiarities and mode of working deserve to be better understood.

There are many excellent mechanics who labor under the impression that cast-iron can be made malleable by simply heating it in a furnace, and then allowing it to cool slowly; but this method of treating cast-iron has merely the effect of rotting or softening the iron, and does not make it malleable.

The bar-iron of commerce is known as malleable iron, but is more commonly called wrought-iron. When castings are made malleable they are known as malleable castings. In the manufacture of malleable castings, the best pig-iron, *i. e.*, that with the best grain or the most flexible, is selected for the purpose, and charcoal iron only is used. The iron is rendered fluid by the usual process of heating in the cupola, and is poured into the molds in the usual manner. After removing the castings from the flasks, or boxes which hold the sand in which the castings are made, they are placed in a rumble, or revolving cylinder, and this operation removes the sand and scale so that they will oxidize readily.

The next process is to pack the pieces closely in cast-iron boxes, and to cover them with steel scales, or the steel oxide which is given off from steel bars in passing through the rolls, and similar to the scales which drop from iron while being forged at a red heat. The steel scales are first treated with sal-ammoniac, which hastens the oxidization. The boxes are next covered, secured, and then luted with fine clay so as to prevent any escape of oxide. The next process is to place them in a furnace so that the heat may pass around the box, until the whole mass becomes red hot and absorbs all the oxide contained in the steel scales. The fire is kept up for seven or eight days, and then allowed to die out. Bituminous or anthracite coal may be used for the heating furnace, for, as the boxes are air-tight, the iron cannot take up any of the impurities which are contained in the coal.

When cold enough to handle, the castings are removed, and once more placed in the rumble, which again removes dry scales liable to be on the castings, gives them a polished surface, and prevents rusting or oxidizing.

The portion made malleable varies materially at times, but the usual depth of the malleable skin is about one-thirty-secondth of an inch, more or less.

Chilled cast-iron, the reverse of malleable castings, is made by pouring the molten metal into iron molds, when the sudden chilling of the iron produces a hard skin on the surface of the iron. Chilled castings are specially adapted for parts where the wearing strain is severe, such, for instance, as rub-irons. Forge or tilt-hammer dies are frequently made by the chilling process. The best pig-iron is also used in this process.

N. Y. S.

FORMS OF COLD-CHISELS.

THE cold-chisel is not so often used in the shop as formerly, much of its old time work being done by the planer, the milling machine, and the shaper; but the time will never come when it ceases to be one of the most convenient hand-tools ever made and used. There are a hundred occasions when it is better than any and all other appliances, and in emergencies it and the hammer are a whole kit of tools combined. But so much has the art of chipping declined that there are shop workmen who do not know the proper form of a cold-chisel. Recently, an ambitious machinist—a journeyman just out of his time—exhibited a collection of tools "picked up here and there, and made at odd jobs," and among them were some cold-chisels, which were worthless as tools unless they were remodeled. The flat chisels had the bit point wider than the blade, and these and the cape chisels had the bit and blade one—a simple wedge extending from the stock to the edge, with a cross section precisely like that of the blade of a pocket-knife. With such a chisel there would be no means of raising a chip, and every blow would merely drive the chisel, like a wedge, deeper into the metal until the bit broke off. The widening of the bit beyond the edges of the blade is a certain source of weakness.

The blade of a flat chisel should be flat, of an equal determinate thickness, one-quarter of an inch thick for a blade one inch and an eighth wide, and correspondingly thinner for narrower blades. At the bit, or point, the blade should be ground off at an angle of 60° . Then, the bit should not be quite so wide as the blade; if the blade is one inch, let the bit, or edge, be one thirty-second of an inch less. Still another requisite: the cutting edge should not be straight across, but it should form a convex line, so that the corners shall be back of the centre of the edge. The ridge between the 60° edge and the flat blade forms a fulcrum for lifting the chip at each successive blow. The narrow cape chisels should be made by similar rules, except, of course, the uniform thickness of the blade, which is impossible, but observing the same narrowing of the bit and the same "stunt" edge of 60° .

It may be asked: How can a clean job be done where corners are required, as in cutting keyways, if the bit is to be narrower than the blade? Simply by using a narrower bladed chisel for finishing the corners. There is no ordinary job that cannot be finished with chisels with bits appreciably narrower than the blades, using differing widths of chisels. It may be that on a cleaning, scraping finish in a keyway a full width chisel with flush bit may be useful, but even here a narrow finishing chisel with drawn-in corners will make better work going down each corner in succession. These elegant, wedge-bladed, spreading bit chisels are beautiful to look at, but they are not necessarily useful because some manufacturers for the trade send them out in this form.

In the article to which reference has been made, composite chisels—wrought iron with steel bits—were commended for certain work. It would be well, also, if, when the chisel is made solid from the steel bar, the head or hammer end be occasionally annealed. The continual hammering on the end of the chisel not only brooms and disintegrates the steel, but it hardens it harder than any fire and water can do it, and from this cause come sometimes serious accidents. The writer suffered for years from a disease in the eyes engendered by a flying particle of glass-hard steel from the head of a cold-chisel with which he was working.—*Scientific American*.



WHAT CAN YOU EXPECT?

We remarked in our last number, page 406, that we hadn't much sympathy for those of our country friends who wanted city style about their painting, but were unwilling to pay city prices for such work. An instance of this has since come to our notice, which illustrates a common failing so pointedly, that we cannot resist the desire to repeat the facts, although we of course withhold the name of the carriage-builder referred to.

He lives in an adjoining State, and is a first-rate fellow, and does good work. He came to us, and after complaining of the difficulty he had found in securing a first-class painter, added: "I wish you would find for me the man I want. He must be a good body finisher and striper, a sober man, a steady man, and a gentleman."

"Very good! and what inducements are you willing to offer such a man?"

"Well, I'll give him a steady job all the year round" (he emphasized this fact as if it were something special), "and two dollars a day!"

We couldn't help smiling at this. "Why, my dear sir, the roughstuff rubbers at Brewster's get more than that."

A man such as our friend described commands in New-York City from \$3.50 to \$5.00 a day. Certainly no New-Yorker would feel disposed to break up his home associations (and all men of this stamp have them), and go into a country village for any less than the wages named.

We offer the above as an explanation of our inability to answer the numerous requests which are addressed to us, especially in the spring of the year, for first-class mechanics. Such men are always scarce; and at the wages which our correspondents frequently name, they are simply unobtainable.

HOW TO PREVENT GREENING OF GOLD BRONZE.

English varnish seems to hold an acid that draws out verdigris from gold bronze, and it should never be put directly upon bronzed work. It is a good plan to first varnish the work with American rubbing varnish, or to pencil varnish the bronze with French shellac.—*Coach, Harness and Saddlery.*

NOTE.—All varnishes, American as well as English, and rubbing as well as finishing, applied over gold-bronze, affect its luster to some extent, producing a greenish hue resembling that of verdigris. To avoid this, use the best gold-bronze, mix it in the lightest shade of varnish obtainable, and apply with a soft camel's-hair brush, as if it were an ordinary color. This seems to hold it intact, so that a subsequent coat of finishing varnish, if light in color, will not readily affect it. We do not recommend applying more than one coat of varnish over gold or gold-bronze.

L.

HOW TO MIX RENO'S FILLER.

EDITOR OF THE HUB'S PAINT DEPARTMENT—DEAR SIR: Will you please send me a receipt for mixing Reno's Filler, and oblige a reader of *The Hub*?

A. T., Clinton, Ill.

ANSWER.—Reno's Filler makes a good, cheap and reliable roughstuff, if properly mixed and applied. Various methods are used in different shops, according to the time allowed for doing the work. We will indicate two of these, one adapted for work where plenty of time can be allowed, and one for quick work.

For slow work, we will take, for instance, 20 lbs. of the Filler. Add to this 5 lbs. of good keg-lead. The lead should be mixed in rubbing varnish, so that it will readily assimilate with the Filler. Then add sufficient varnish to mix the whole to the consistency of a stiff paste. Then thin with turpentine to working consistency. It is now ready for application.

Some painters may except to the above and say: "Why, aren't you going to put any dryers in? Where is your Japan?" We do not advocate the addition of any drier, as the Filler itself is a mineral paint with considerable drying properties of its own, and we have simply given it elasticity by the addition of white-lead and varnish.

The quick method only differs from the above by mixing in Japan Gold-size of good quality, in place of rubbing varnish.

L.

PRACTICAL HAND-BOOKS WANTED.

SHEBOYGAN, WIS., Aug., 1883.

TO THE EDITOR—SIR: Have you a cheap book on lettering? If so, you send it to me. Have you published any scroll books besides the one which have bought from you already?

P. WEIGAND.

ANSWER.—We published a cheap hand-book on lettering two years ago, but it is now out of print, and we are not likely to bring out another edition, as the numerous plates, which gave it its chief value, were destroyed by fire last summer. Our "Studies in Scrolling, Striping and Ornamental Painting" (price \$1) is the only remaining hand-book that we are now prepared to supply. It is this, we believe, which you already have.

MUD-SPOTS ON VARNISH.

CHICAGO, ILL., Aug. 21.

EDITOR OF THE HUB—DEAR SIR: I wish to put in a circular the short article you published some years ago about mud-spotting of varnish, but I have looked in vain for it in our back numbers of *The Hub*. Will you please send me the number in which it appeared; or, if you cannot do this, please republish it in your next number, and I think others might find it useful. Yours very truly,

K.

ANSWER.—We think our correspondent must refer to the "Coupon" which accompanied our January number, 1875. We can no longer supply that number; but here is a reprint of the contents of the "Coupon."

"High-grade finishing varnishes, whether of English or American make, possess their wearing qualities from the simple fact that they retain their elasticity or oily principle to a great length of time. The surface hardens sufficiently to resist dust and admit of being washed, but the body of the varnish remains soft and sensitive, and mud is allowed to dry on the surface of the varnish both stains it, and extracts, by capillary attraction, the oil contained in the varnish. Each spot of mud, according to its size and shape, acts on the varnish immediately under it, but no further, from the fact that a suction is created by the evaporation of the moisture contained in the mud. Different kinds of soil act with more or less injurious effects. The sandy soil of New-Jersey would have but a slight effect on a varnish which would be badly stained by the more adhesive, clayey soil of Indiana or Kentucky, and the filth of a large city would be still more fatal to the gloss of the varnish."

HOW TO PAINT BUSINESS WAGONS QUICKLY AND CHEAPLY.

GREEN ISLAND, N. Y.

TO THE EDITOR—DEAR SIR: I give below my method of painting a business wagon quickly and cheaply.

First prime the work as usual, either with lead or with any of the primers now popular.

Next, take dry lead, and mix with equal parts of gold-size, good rubbing varnish and oil. Mix this to a paste, which can be applied with a brush. Fifteen minutes afterward this can be scraped off. Use a knife about four inches wide. Scrape off lengthwise, following the grain of the wood. Allow it to dry, and then sandpaper and color. Have the sandpaper on a block.

On spokes, etc., this paste-coat must be allowed to dry, and then be sandpapered down the same as lead.

Yours truly,

G. BECKLEY.

NOTE.—We are glad to know our correspondent's method of doing such work. It is certainly speedy, but we think there is some waste of material involved which might be avoided.

In the leading wagon-shops in this city, the method adopted in case of hurried work differs somewhat from the above, and may also be interesting to our readers. It is briefly as follows:

Prime as usual. Next take dry lead and mix to a stiff paste with equal parts of Japan gold-size and good rubbing-varnish. Then take a putty knife from four to six inches in width (the wider the better), and "sheet" or plaster the panels with this paste or knifing-coat, following the grain of the wood. This fills very readily the grain and pores. Due care should be taken to apply it as smoothly as possible. After standing from 12 to 24 hours to dry, it may be sandpapered or blocked down when a very smooth and even surface will be produced.

We are now ready for the color, which should have a certain proportion of oil added to it, and so should all the subsequent coats of color. The number of these coats must of course depend upon the pigment employed, a transparent pigment like yellow requiring more coats than an opaque one like black or green.

The above method, like that described by our correspondent, avoids the use of roughstuff entirely, which is a great saving in time; and the saving in material which this method assures, as compared with his, consists in the application of a thin film of paste which is simply rubbed down, while he uses a heavy scraping-coat, a large portion of which is removed and wasted in the process of scraping. We are firm believers in the desirability of using the least quantity of material so long as the desired result is produced, and we therefore recommend the method we have described to the attention of our correspondent and other readers.

VARNISH IN BRUSH-KEEPERS.

the varnish brushes be kept suspended in oil, or in a mixture of oil and turpentine, it sometimes happens that the cement which fastens the hairs into the handle becomes softened, and, when the brush is being used, small particles of this cement come out with the varnish, and cause the work to look sandy. Besides, oil in the brush is apt to cause "pitting," or enameling, if great care is not used to wipe out the oil.

To overcome the trouble, keep the brushes suspended in a tight, covered brush-keeper, in some *finishing varnish made without dryers*. Your varnish-keeper will, no doubt, supply it. But care must be taken not to pour this varnish from the keeper for use on a job; and, to guard against this, it is well to mix the liquid with a few drops of carmine, so that it will be readily discovered, and the staining will in no way injure it for hanging the brushes in.—*Coach, Harness and Saddlery*.

NOTE.—We cannot altogether commend the above suggestions. Our workmen are accustomed to suspend a varnish-brush in precisely the same grade of varnish in which they propose to use it. We do not recommend the substitution of any other kind of varnish, non-dryer or otherwise.

As to coloring the varnish in the keeper, especially with a pigment that costs from \$10 to \$12 a pound, when mixed, we consider this not only quite unnecessary, but also decidedly objectionable, for the reason that any foreign matter thus introduced into the brush, must be absolutely removed before the brush can be used with any sense of security, and this would often be a difficult matter.

HOW TO VENTILATE A VARNISH-ROOM.

SHEBOYGAN, WIS., Aug. 7.

TO THE EDITOR—SIR: How would you ventilate a 15 x 15 ft. varnish-room, having two windows on one side only—the south? Would you use a revolving cap in the ceiling? What does such a cap cost?

P. WIEGAND.

ANSWER.—The smaller the varnish-room, the better, so long as there is plenty of room for the varnisher to conveniently do his work. The location of your room is evidently not favorable. A corner room, facing north and west, is always to be preferred, with windows on both these sides. A room facing south is often subjected to intense sun-heat during working hours, and it is of course more difficult to ventilate; but we think an air-flue, from 12 to 18 inches in diameter, with a revolving turret, ought to be able to remove all foul air. We don't know the cost. An illustration of the air-flue above referred to will be found in August *Hub*, page 212, where Mr. F. B. Gardner gives the following further description of it. We quote his words below:

"Ventilation is secured by having in each room, and near the center, a galvanized iron pipe, 15 inches in diameter, even with the ceiling inside, and extending out through the roof about three feet. On the outside end of this pipe a revolving cap or jack is fixed, which increases the upward draught, prevents the entrance of rain or snow, and avoids a back draught. The inside end is supplied with a tight-fitting cover, to stop circulation of air when necessary. It is closed with a button."

In this connection we take pleasure in calling the attention of our correspondent and all other readers who are interested in "The Requisites of a Perfect Varnish-Room," to the series of prize articles on that subject which appeared in Volumes XX and XXI of *The Hub*, which together form an exhaustive review of all the conditions to be observed and avoided.

HOW TO CLEANSE AND SOFTEN A PAINT BRUSH.

"WHEN a paint brush is stiff and hard through drying with paint on it, put some turpentine in a shallow dish and set it on fire. Let it burn for a minute until it, then smother the flame, and work the pencil in the fingers, dipping it frequently into hot spirits. Rinse all paint brushes, pencils, etc., in turpentine, and wash with a mixture of sweet oil and tallow to prevent them from drying hard, and put away in a box out of the dust."—*Manufacturers' Gazette*, Aug. 9.

NOTE.—Well, the above tells one way of cleansing a paint brush, but does not tell the whole story. Flaming turpentine in a carriage paint-shop, surrounded by the inflammable material usually present in such a shop, cannot but be considered highly dangerous—unwarrantably so, and is very apt to get beyond the control of the painter.

A safer way, in case hot turpentine is thought necessary, is to boil it in an iron pot or kettle, and dip the brush into it while the turpentine is just hot enough so that it will not scorch or sear the bristles. The brush may be allowed to remain in the heated turpentine for a few minutes, until the hard coating of paint has become softened, so that it can be easily removed by a palette-knife or dull pocket-knife. Even this process is accomplished by more less risk, as the fumes arising from heated turpentine are very inflammable. The best way of all is to have a carefully-corked can of benzine on hand; and, when absolutely needed, to dip the paint brush in this, which, as our experience teaches, will be found sufficient for all ordinary cases. The paint brush that cannot be washed out in benzine may be considered useless for the carriage painter's needs.

L.

RECEIPTS FOR MIXING PAINT TO IMITATE NATURAL WOOD.

ARDLEIGH, ESSEX, ENG., Aug. 6, 1884.

TO THE EDITOR—DEAR SIR: Please accept my thanks for past favors, and also for information already kindly given.

Will you now please give receipts to cover the following need. I have some varnished carts to repair. Some of them are badly stained. The owners will not have them painted, as they prefer the natural wood varnished. But it is compulsory to paint some of them. Now, I saw one, a time ago, of American build, painted so near the natural color of the wood that it required close inspection to detect it; and if Mr. Long will kindly give receipt for painting the following colors (as soon as convenient), I shall esteem it a special favor. The woods I desire to imitate are birch, maple, walnut, elm, light oak, ash, mahogany and rose-wood.

Yours faithfully,

M. W.

ANSWER.—It is the grainer's art, rather than the color-mixer's, which is mainly instrumental in producing such imitations of natural woods as our correspondent refers to. The mixing of the colors is a comparatively easy matter, but the difficulty arises when we come to the graining. The best grainers are artists, and the trade is peculiar to a very few persons, some of the best of whom are able to imitate any kind of wood or marble so that it is extremely difficult to distinguish the work of the artist's hand from that of Dame Nature herself. The best such imitator of natural woods with whom we are acquainted is Mr. J. Millward Wade, who is employed by the John Stephenson Co., car and omnibus builders, of this city. His method of producing such effects is a secret one, but consists in the use of certain dyes; and when he has produced the exact colors, he then employs certain patented rollers which give the graining effect. We do not know how much of his trade secret Mr. Wade may be willing to give away or sell, but we would advise our English correspondent to address him and request specimens of his work, which will tell more than we can explain on paper. They are really works of art. His home address is No. 126 E. 27th-street, New-York.

HOW CAN THE CARRIAGE PAINT-SHOP BE MADE TO PAY BETTER?

A CALL FOR SUGGESTIONS.

If there is any branch of the carriage business where a demand particularly exists for an advance in prices of work, it is most decidedly in the painting department. We, of course, are understood to refer to carriages to be repainted and varnished, and not to new work, as the latter is painted according to rules that exist in the different manufactories.

We doubt if there is anyone connected directly or indirectly with the carriage business who has not heard it said repeatedly that there was nothing made in the paint-shop; and some can remember of hearing the assertion that it—the paint-shop—was run at a loss. As naturally occurs when such assertions are made, questions arise as to the cause. We have asked a great many times, and of many different painters and carriage manufacturers, but as yet we are unable to assign the plague of low prices satisfactorily to any definite cause, and can only join with the many and acknowledge that the disease exists, and to all appearance is increasing in its effects.

We do not write on this subject to cause anyone to feel discouraged or dissatisfied, as the trade of carriage painting is entitled to rank with any in the catalogue, and there is no mechanic who is more independent than a thorough carriage-painter. The only desire we have is to ascertain whether something cannot be done to advance the prices of carriage painting so all may be benefitted, and the carriage-maker be able to say that he receives the same percentage of profit from the paint-shop that he does from the smith, wood or trimming-shops. An advance of prices is an undertaking that is always accompanied by considerable hard work, but the prices now paid on the average for carriage painting are so low that any increase on them will fully repay all the labor and trouble expended in the task.

As to offering any suggestions that will tend to accomplish the desired result, we admit we do not feel (if we could do so) like making any; but, at the same time, we are acquainted with many in the carriage trade who are fully competent to make suggestions on the subject, and we would be more than pleased to receive them; and we earnestly invite all those interested to send in their opinions, and by a united effort see if the devilry of low prices of carriage painting cannot be obviated.—*New-England Carriage Journal*.

* * *

NOTE.—The above suggestion commends itself to us as a very timely one, and *The Hub* will be glad to lend a helping hand in investigating the subject. Our correspondents among the painters are requested to do the same. There is certainly a leakage in nearly every carriage paint-shop, even the best organized, for which the foreman painter is frequently not responsible. We could say much on this subject, and we propose to do so later on; but we prefer first to see what our correspondents and those of the *New-England Carriage Journal* may have to say.—ED.

HOW TO CLEANSE DIRTY VARNISH-BRUSHES.

If a varnish brush be washed with soap and water, it will never afterward possess that elasticity so desirable; and if washed in turpentine it will become filled with small white scales of dried varnish, or, as called by many, "lousy." The turpentine also drives these specks of gum or dried varnish up into the head of the brush, where it remains, to leave a little at a time with the varnish when the brush is in use. When a brush gets dirty, the best way to clean it is to work it out in varnish on some clean but common job.—*Coach, Harness and Saddlery.*

NOTE.—We think that "if," with which the above quotation opens, should be printed in the biggest kind of capital letters. No varnish brush ought ever to have any water come in contact with it, for it will destroy its elasticity, and more especially so in case it is made of fitch, bear or badger hair. The bristle brush is not so easily affected by water as those mentioned; but a varnish brush of any kind is more or less injured by water, and should never be washed therein. Working out in varnish, or in a mixture of about three parts turpentine and one part raw linseed oil, is the only proper way to cleanse such a brush.

The condition of the varnish brush is of such vital importance that, when it becomes hardened or soiled sufficiently to require washing out in anything, it becomes useless for a long time as a body brush; and the better way, therefore, when it reaches this state, is to turn it over to the carriage-part varnisher. First-class varnish-brushes are now sold at a price which places them within the reach of all, and they are supplied ready for use, so that it is no longer compulsory, as formerly, to waste time or trouble over one that is in any way defective. L.

PAINT DRYERS AND THE DRYING OF PAINTS.

"PLAIN Talk with Practical Painters" is the title of an attractively printed and valuable little hand-book which has just been issued by Messrs. John W. Masury & Son, of this city. We understand that it was written by Mr. C. O. Wolcott, of that firm; and whatever he writes is always sure to be practical and to the point, and well worth reading.

The pamphlet contains thirty-two pages, the first twenty-two of which are devoted mainly to the subject of house-painting; but many useful shop-hints are introduced, gathered from Mr. Wolcott's long experience as a paint user and paint manufacturer, which will prove equally valuable to all who handle the brush. We quote below his reference to paint dryers, which seems to us particularly well put.

"The transformation which oil paint undergoes in its change from a liquid to a solid substance has not been as yet satisfactorily explained. The theory that paint hardens by the absorption of oxygen from the air, may or may not be correct. An exhaustive series of experiments, only, would settle the question; but we propose now to deal with facts, not fancies. The point of interest to the man who paints is, will the material harden to a point of usefulness within a reasonable time? Questions as to the presence of ozone in the atmosphere, and all the fine distinctions of chemical science, are out of place here. What we want to know is, simply, will the paint we are about to use harden in a reasonable time?"

The change of paint from a liquid to a solid, is an operation uncertain and dependent. The paint which we may apply in a July day and temperature, will harden so as not to elicit a word in condemnation. This same mixture, applied in December, may utterly refuse to dry or begin to dry, as the phrase goes. * * *

Now it would seem that the necessities of such a case would of themselves call forth a remedy. Nor do they not! Research has discovered a remedy so full and complete that this cause of complaint can be said to exist no longer. The remedy is simple and not intricate. It consists in the addition to the mixed paint of a substance which in itself contains the property of neutralizing the untoward conditions of winter temperature, and creating, as it were, for the drying paint a perpetual summer atmosphere,—this is a liquid dryer. * * *

Paint, that is, oil paint, loses, in a measure, its property of drying in cold weather; and particularly in cold *damp* weather. Therefore, provision should be made for this when painting is performed in winter. A fire in the room during the process of painting in winter is the equivalent of a summer temperature. Always, if possible, secure a temperature of 70 degrees to paint in. In the handling of paint, heat is an indispensable power."

IDENTITY OF PRUSSIAN BLUE AND TURNBULL'S BLUE.

It is of interest to know that what is called Turnbull's blue, formed by precipitating a ferrous solution with ferrid-cyanide of potassium, reacts in the same manner when treated with hydrochloric acid, and similar crystals separate. This fact favors the theory previously advanced that Prussian blue and Turnbull's blue are perfectly identical compounds. If a solution of oxide of iron, containing an excess of hydrochloric acid, be mixed with a solution of ferro-cyanide of potassium, also containing hydrochloric acid, no precipitate is formed until diluted. With ferrous oxide and ferrid-cyanide, both containing hydrochloric acid, a pale yellow solution also results. In this solution sulpho-cyanides produce a red color, showing that the iron has been oxidized at the expense of the ferrid-cyanide, and then it unites with the ferro-cyanide formed. This favors the identity of Turnbull's blue and Prussian blue.—*The Painter.*



TRIMMING-SHOP.

"A sad trimmer, but no less in company a very pleasant fellow.—BYRON."

WRINKLING OF LEATHER TOPS.

EDITOR OF THE HUB—DEAR SIR: Would you kindly let us know by return of mail what is the cause of roof pieces of leather-top wrinkling after they stand a few days in the repository. Is it the fault of the leather, or should the leather be sponged and stretched before putting on? Inclosed please find stamp; a state in your reply your charge, and we will gladly pay you. If you publish please don't mention our names.

By complying with the above you will greatly oblige us.

Respectfully yours,

CANADIAN SUBS.

ANSWER.—We have consulted one of the best trimmers in this city regarding the subject referred to in the above letter, and here is what he says:

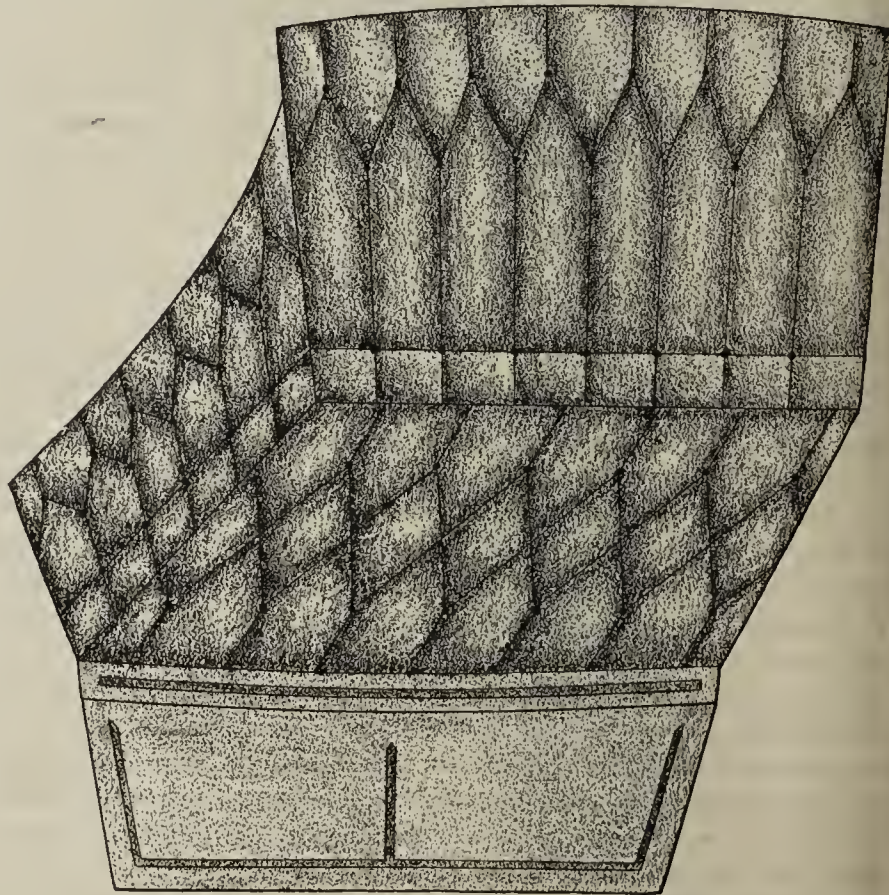
The wrinkling of leather is in most instances caused by being put on too loose. The leather must be put on tight, and this is particularly important in case of the flanky part of the hide. Our informant states that he always puts the best part of the hide on the sides, the flanky parts on the front and back, and the worst side of the flanky part on the back of the top. The statement about drawing the leather on tight he wishes not to be misunderstood, as this does not signify having the leather drawn on with pinchers. Just how tight the leather requires to be put on is impossible to state, as this is a matter of experience and judgment of the part of the trimmer.

After the top is properly fitted and seamed up, the seams are to be dampened before putting the top on, but in no case should the leather be dampened and stretched before putting it on the top.

SECOND ESSAY ON TRIMMING PHYSICIANS' PHAETONS: NO PRIZE.

(By X Y Z, of New-York City.)

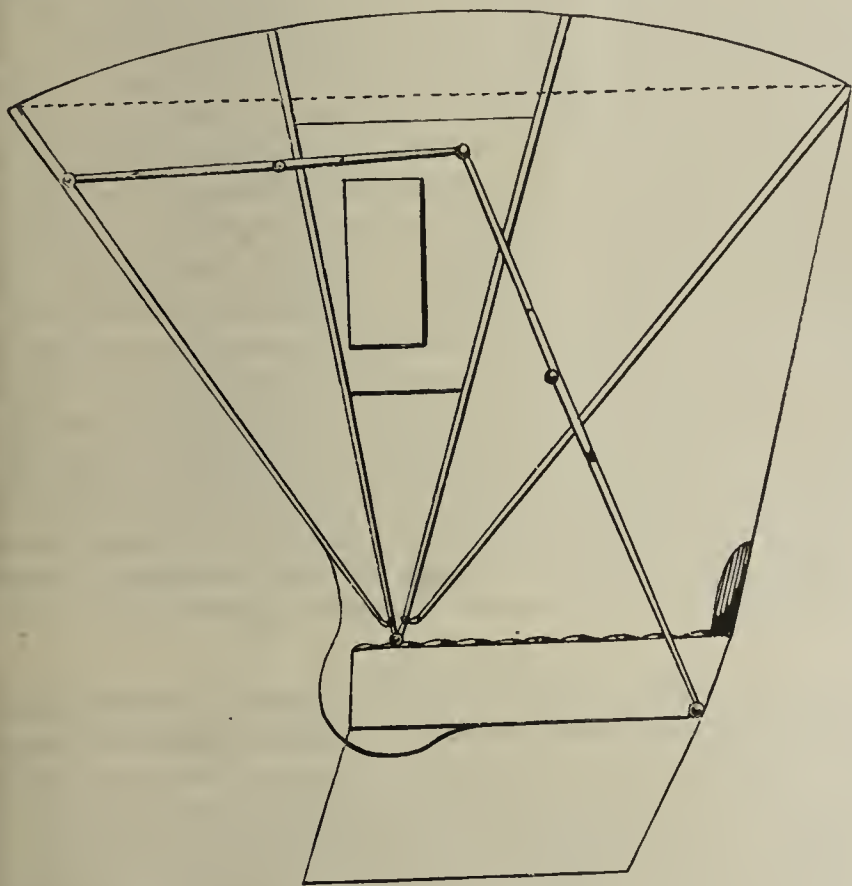
To trim a physicians' phaeton to the accompanying design, take two pieces of buckram, shape it to nearly fit the back panel, and sew one row of five or six springs to the middle of the buckram and another row to the middle of the upper half. Nail the buckram to the body, and tie the springs lengthwise and crosswise. Be sure that the springs stand straight when in motion; then nail a piece of burlaps over them. Make a paper pattern of



the back over the springs, mark the given design on it; lay the pattern on a frame covered with burlaps and mark off the design. Allow for fullness in cloth or leather. The first tuft is $3\frac{1}{2}$ in., with $1\frac{1}{2}$ in. fullness $\frac{3}{4}$ in. for sewing, and $\frac{3}{4}$ in. folded up under the tuft to make the plain stand. Allow no fullness on the pipes, but $\frac{3}{8}$ in. between the half diamonds, and $4\frac{1}{2}$ in. from the top edge of the pattern to close the back. Width of the pipes, 3 in.

The side quarter should be made on three-ply buckram, with no fullness in material; but make the side quarter thin, so as to leave the inside of the job as roomy as possible. Iron the cloth well in the marks, lay one layer of hair and one of cotton on the buckram and tuft down. If a pocket is desired, take a piece of enameled cloth, measure from the seat-frame to the center bottom, and give it the shape of the side quarter. Put a raiser about 1 in. from the top edge, and cover with cloth. Blind-stitch it on the bottom to the seat-frame, and nail back and front, finishing with pasting-lace on the front.

In the cushion allow 1 in. across the diamond, $\frac{7}{8}$ in. to the length of the diamond, and $1\frac{1}{2}$ in. all around. Iron or press the material well in the marks, and line with muslin and cotton. Take enameled duck, paste on it a raiser like the design of the fall, and paste the material only around the raiser, as a fall pasted down all over will become wrinkled as the paste gives way when the fall is lifted up or down.



Four bows are sufficient for the top, as they allow enough space between the bows for the glass-frame. The back bow ought to be set first. Then measure 3 and $5\frac{1}{2}$ in. from the seat, fasten the front bow temporarily, and lay a straight-edge across and measure the spread, which should be 3 ft. 9 in. to 3 ft. 11 in., and $1\frac{1}{2}$ in. lower than the back bow. This will give the length the bow ought to be cut. Then place the next to the back bow, measure from the under edge of the straight-edge to the under edge of the bow 3 in., and cut the bow. The bow next to the front ought to be $\frac{1}{4}$ in. lower. The glass is straight, 4×8 in., and the frame-pieces between the bows, for screwing the middle prop to, should be hard wood. The light must be plumb. After putting in the head-lining it is well to tack the lining temporarily to the sides, and mark with chalk the position of the slat-iron bolt. Sew a leather washer to the cloth; punch a hole in and slip on the bolt, then cut the cloth loose enough around the ends of the bows to leave the top lining sufficient play when laid down. To this sew another piece of cloth to form a pocket. This will make a neat job, and covers the ends of the bows well so that they will never tear the cloth and will look nice when the top is laid down. The cord ought to be left loose on an oblique line measured equally from the body to the slat-iron and from there to the front bow. A cord lined with cloth wears better than one lined with leather, and, while the leather becomes hard and shrinks, the cloth remains soft. The leather should be nailed fast to the body and finished with a brass molding (not bound), and fastened with knobs or black-headed nails.

Another good practice is to leave a piece of leather of about 2 in. on the outside of back-stay, also on side quarter, and paste it, when the leather is put over, together; cut it in a nice shape about 1 in. on top and let it run out to a point on the bottom and bind with leather. This allows the leather more space to dry in, and looks nice when it is new.

X. Y. Z.

IMITATION EBONY.

MUCH of what now passes for ebony is simply a compact wood of some sort, washed three or four times with a boiling decoction of logwood, dried after each application, and then washed with a solution of acetate of iron, made by dissolving iron filings in vinegar. This results in a very deep black, and penetrates the wood to such a degree that ordinary scratching or chipping does not disclose the original color of the wood.

SOURCES OF TROUBLE IN PIECING TOP JOINTS.

THEO. PARKER, located in one of the busy interior towns of Ohio, has addressed us the following inquiry:

EDITOR OF THE HUB—DEAR SIR: I am a trimmer, and claim, for the experience which I have had, to be as good as there is in this section. I set the tops or bows myself, and take the measure for the joints. Our smith pieces the joints exactly to measurement, but when the joints are placed on the top they seldom come right. Our smith places the blame on me. I at once transfer it back to him. He says he can make a contrivance which will give the exact measure each time, and so correctly that no resetting will be required. Now, then, if you can, from what I have written, please state who, if either, is to blame; and if there is any cause for the discrepancy, please state it. Also please state what your views are on the proposed contrivance, and, if not asking too much, please give us some good ideas on the subject.

ANSWER.—Neither the trimmer nor the smith seems wholly at fault in the case stated, and yet both seem more or less to be working in the dark. It is next to impossible, where perfection is the standard, to take the measurement of joints so exactly as to have them prove just right on trial, which is due to many influences. The top leather is liable to stretch a trifle more on one side than on the other. The wadding may also give a trifle more between the bows of one side than it does on the other. The back stays are also liable to the same action, when the joints are placed and subjected to tension. The screws may fit better in one slat-iron than in the other, which would allow of a change of position of the bow. Or perhaps one prop-bolt may not fill up the hole in the wood so well on one side as on the other.

The above, singly, may be only trifles; but collectively, they may cause a discrepancy of half an inch, and a discrepancy of even one-eighth of an inch at the joint-rivet will be seriously felt when the top is let down.

Great care must be used in taking all the measurements, and also in fitting and piecing, for the variation of a small fraction of an inch, either by upsetting or drawing of the joint at the proper end, will either increase or remedy the fault.

We cannot speak favorably of the contrivance referred to. From what we can learn, it would take longer to adjust the contrivance than it would to do the work, and give results in no respect more reliable.



OFFICE.

TRADE GOSSIP OF THE PAST MONTH.

A GOSSIPY article on the subject of "Summer Carriages: Season of 1884," reproduced from the *New-York Tribune*, will be found on a subsequent page of this number, and well merits reading. We are glad to notice that the leading carriage-builders in our principal cities are learning to submit very gracefully to the demands of newspaper reporters. Several published interviews of like character are now before us, and we would be happy to publish more of them if space permitted; but the one selected seems to include the main facts.

* * *

SEPTEMBER belied its claim this year, and proved a summer rather than an autumn month, and it was characterized by the dullness usual during that season. It opened warm, and the cities were practically deserted, while at the watering-places and summer resorts the season was too far spent to afford them the benefits which might have been expected from a fervid June. Later in the month, with the return of summer visitors, there was considerable improvement in the city carriage trade, and encouraging orders for new work are reported, while repairing has continued exceptionally active. Quite a number of trade embarrassments among members of the carriage and accessory trades were reported by *Bradstreet's*, which we detail under "Trade News" in this number, but most of these are comparatively unimportant, and suggest reverses in the past, rather than present prostration. On the whole, we think the trade have reason to congratulate themselves upon having passed through the summer with comparative ease. The present situation seems fairly encouraging, and it is our firm con-

viction that a widespread and permanent improvement may be expected as soon as the vexed Presidential question is finally disposed of.

* * *

THE United States offers a spacious driveway for business enterprise, but we consider it hardly wide enough for more than one *The Hub* to revolve in it at the same time; and ours having now held the road under its present copyrighted title for over fifteen years past, we are naturally enough indisposed to give way to aspiring namesakes, however creditable their character. As announced under "Trade Gossip" in our last number, we were recently surprised to learn that another *The Hub* had made its appearance in Wisconsin, in the form of an eight-page weekly newspaper, "devoted," according to its sub-title, "to the interests of the Great Northwest." Its publishers were the T. G. Mandt Mfg. Co., Limited, of Stoughton, the well-known manufacturers of farm and spring wagons, whose reputation precluded the idea of any willful intent on their part to infringe upon our copyright. We, of course, entered our protest. A friendly correspondence ensued, which, with a little forbearance on both sides, finally terminated to the satisfaction of all concerned; and on Aug. 23d we received from them a letter to the following effect. They say: "We have ordered a new electrotpe of our heading, changed as proposed [to *The Stoughton Hub*]; and expect to have it here in a few days at least. As soon as this is received from the engravers, we shall change; and we shall be glad to exchange with such a journalistic light as *The Hub* of New-York. Accept our thanks for the kindly spirit you manifest toward us." One misunderstanding was thus amicably arranged.

* * *

JUDGE of our further surprise when, on Aug. 16th, we accidentally learned that still a third *The Hub* was in the field, published at No. 247 Washington-st., Boston, Mass., by the "Hub Publishing Co.," Messrs. A. H. Grimke and B. R. Wilson, editors. Without an hour's delay, we entered a protest similar to the one above referred to, and friendly negotiations are now in progress, which promise a speedy and amicable adjustment of this second infringement of our copyright, which was obviously unintentional. In explanation, Mr. Wilson writes as follows: "Your courteous letter, informing us of a possible infringement of your company's interests, has been received; and it is hardly necessary to say that we are entirely free from any intention to conflict with the interests of your company. Our journal is devoted to a dissemination of news especially affecting the interests of the colored people. We publish weekly. We have been publishing our journal for more than a year. Please examine the copy we send you, and see if you think that your very fine and handsome periodical stands in any danger from our little infant." We have examined with interest the highly creditable specimen copy sent us, and we would not willingly embarrass the enterprising promoters of so worthy an undertaking; but the title of our periodical has become a valuable piece of property, and we feel compelled to insist that our Boston friends should make some change in the title of their paper, which is now identical with that of our own magazine, so that there may be no liability of confusion between the two. We have already suffered annoyance from this source by the republication in the *New-York Tribune* of Sept. 8th, and the *New-York Herald* of Sept. 9th, of certain political views prominently credited to "*The Hub*," which are by no means our views, and we should feel greatly disturbed to have them ascribed to our non-political magazine. We hope, in our next number, to be able to announce that this third *The Hub* has changed its name and left us in undisturbed possession of our obvious rights in the case.

* * *

A FIFTH bulletin respecting the transactions of the "Osgood Wood-Filler Fraud" will be found on a subsequent page. We wish every carriage-builder and carriage-painter in the country, into whose hands this copy of *The Hub* falls, would carefully read this conclusive evidence of the rascality of the traveling swindler with whom the carriage trade have now to deal, and then utilize the information by lending a helpful hand in securing his arrest. The letters published this month contain little that is new. They simply emphasize the numerous warnings we have already sounded, and, by their number, disclose why we are anxious to have him tripped up with the least possible delay. We have tried to do our

part toward this end, and we propose to continue publishing bulletins of his transactions until he retires from the field, gets lodged in jail, or dies. We wish the carriage-builders and carriage-painters would do their part better. As a matter of fact, they have thus far done nothing at all, beyond reporting the circumstances after the bird had flown. A little spunk and prompt action on the part of some one—perhaps the present reader of this item—will suffice to stop the disgraceful course of this rascal; and his captor will deserve the hearty thanks of the entire trade.

* * *

It is worthy of note that none of our exchanges, excepting the *Coach Painter*, have paid the slightest attention to the traveling swindlers who have recently preyed upon the carriage trade. We do not quite understand the reason of this. Have they never received information regarding the doings of Lazier and the Osgood Wood-Filler Fraud? This seems hardly possible. And if they have received such information, what possible excuse can they offer for suppressing it? Can they for a moment question the reality of the evil? The testimony already offered by our correspondents would seem ample to remove all such doubts. Do they imagine that *The Hub* possesses, or desires to possess, a monopoly of this class of subjects? Or have our efforts in this direction given rise to a feeling of jealousy, leading them to think that any action on their part would seem like beating *The Hub's* tomtom? We sincerely trust not! The evil is manifest, and it would seem the duty of every journal representing the carriage trade to illustrate its solicitude for the well-being of that trade by using every proper means in its power to abolish such pests. We see no reason why all should not heartily join hands in this disagreeable but necessary task, and we shall be happy to supply the latest facts in our possession whenever applied to.

* * *

OUR next month's *Hub* will be our "Special Convention Number," and we are preparing to make it a notable issue in many respects. This convention, as most of our readers are aware, will be the twelfth annual meeting of the Carriage Builders' National Association. It is to be held at Mercantile Hall, in St. Louis, Mo., on Wednesday and Thursday, Oct. 15th and 16th, to be followed probably on Friday, Oct. 17th, by a day of recreation. The exhibition of carriage novelties promises to be a leading feature. The reports regarding the number of delegates expected to be present are somewhat contradictory, but there seems every reason to believe that it will compare favorably with that of any previous meeting, and that the Western and Southern trade will be particularly well represented. As we have already had occasion to remark, the Association is now in full tide of prosperity, with a roll of six hundred and sixty-two (662) members, a corps of active and able officers, and with a programme of practical work laid out which, if successfully executed, cannot but result in permanent benefit to all concerned, either directly or indirectly. The organization is no longer an experiment, but an established power, whose influence for good has already been illustrated in many ways, including, foremost, the encouragement of technical education. The time has come when every American carriage and wagon-builder, who has any pride in his trade, should manifest it by lending his name, influence and annual fee of \$5 to the maintenance of the Association which thus worthily represents its great and growing interests. If circumstances prevent you from attending the approaching session and meeting face to face your co-workers in the trade, you should at least lend the active workers the mark of your approval and sympathy implied by fellow-membership, and thus help to uphold their hands in promoting the development of this important branch of American industry.

AMERICAN INVENTIONS.

AN English journal gives credit to Americans for at least fifteen inventions and discoveries, which, it says, have been adopted all over the world, *i. e.*: 1st, the cotton-gin; 2d, the planing machine; 3d, the mower and reaper; 4th, the rotary printing press; 5th, navigation by steam; 6th, the hot-air or caloric engine; 7th, the sewing machine; 8th, the india-rubber (vulcanite process) industry; 9th, the machine manufacture of horseshoes; 10th, the sand blast for carving; 11th, the gauge lathe; 12th, the grain elevator; 13th, artificial ice manufacture on a large scale; 14th, the electro-magnet and its practical application; and 15th, the composing machine for printers.

THE OSGOOD WOOD-FILLER FRAUD.

BULLETIN NO. V.

NUMEROUS additional witnesses have appeared, during the past month, in the case of Carriage Trade *vs.* Osgood Wood-Filler Fraud; and we present below specimens of the new testimony thus secured.

I.

Letter No. 1 relates to a profitable excursion which was made by him into the stamping-ground of his predecessor, the renowned Lazier, about two years ago. Mr. G. W. Robinson, the well-known carriage-builder, of Kingston, Ont., is the first witness. He writes as follows:

KINGSTON, ONT., Aug. 19, 1884.

DEAR HUB: I should have written you before in regard to the traveling swindler with the Patent Primer. He was here about two years ago, and engaged a livery man to drive him to all the small village and country shops within twenty miles of Kingston. That livery man has been away, and I wished to see him before I wrote you. He returned home last night.

I read him the description you published in *The Hub*, and he says: "That's the very man!" He roped in nearly every one he met with, and would sell the receipt alone from \$1 up to \$50. If he could not get money, he would take a note or an old watch, or anything, to make a deal. When he came into my shop he had a piece of a panel and two pieces of a spoke, painted and finished, he claimed, with his Patent Primer. He also had a bottle in his pocket, containing a sample. He poured a few drops in the palms of his hands, rubbed it around, then pulled his hands apart, and the stuff would string out the same as good glue. He showed me a testimonial from Brewster & Co., of New-York, and also one from Jas. Cunningham & Son, of Rochester, N. Y., both written on printed letter-heads. I asked him why it was not advertised in *The Hub* and the other trade journals. He answered that it was only sold by agents. I told him frankly that I believed he was a fraud, and that his Patent Primer was also a fraud. He left me alone then, but caught another man here in Kingston. He took a great deal of money from around here.

G. W. ROBINSON.

II.

A Connecticut correspondent describes as follows a visit from apparently the same party, with which he was honored early in July last:

MANCHESTER, CONN., Aug. 18, 1884.

EDITOR OF THE HUB—DEAR SIR: In answer to your request in the August *Hub* to give any information concerning the swindler selling receipts for the "Osgood & Co. Wood-Filler," I would say that some six or eight weeks since he called on me, showing the article, and also samples of wood which he claimed were filled with it.

His plan was to sell receipts for the making of the article, and the right to use it in the shop, or to include the town, as you might agree. The buyer was required to sign an agreement not to make known the contents of the receipt under a forfeiture of some hundreds of dollars (I have forgotten the exact amount).

He showed a large list of such agreements, received from carriage-makers in New-York, Boston, New-Haven and Hartford. He also claimed that it was generally used at the West, mentioning the Columbus Buggy Co. in particular, who, he said, used it on all of their work, and had done so for the past two years. His price was \$10 for a shop-right, but, rather than not make a sale, he would give me the town-right for \$5. My opinion, expressed at the time, that he was a swindler was confirmed by learning, a few days afterward, that he told in a friend's shop that I had bought the receipt.

I have referred to your article in the March *Hub*, but I find no description of the man. This one was young, under thirty, rather small, would weigh, I should think, about 135 pounds, with pleasant address, but a face that would excite suspicion and distrust.

Truly yours,

C. H. ARNOLD.

We now come to a series of later developments, which we will endeavor to follow chronologically.

On Aug. 14th last he had the audacity to spend the day in Nyack, only twenty-five miles distant from the *Hub* office. Below are two reports of his transactions in that town.

III.

Messrs. A. Taylor & Son, carriage and sleigh-builders, write as follows on the afternoon of his call.

NYACK, August 14, 1884.

EDITOR OF THE HUB—DEAR SIR: We noticed in your magazine of August that you requested any person who learned of any one selling Osgood & Co.'s Wood-Filler, and whose mode of selling the same corresponded with description, to notify you. A slim-build smooth-faced young man, wearing a plaid suit, called on us to-day with testimonials from Brewster & Co. and the Columbus Buggy Co., and wanted to sell us receipt and shop-right for \$10. We thought we recognized him from your description, and had nothing to do with him. He said he was going to Englewood, N. J., this evening to sell to parties there.

A. TAYLOR & SON.

We really feel a little cross with our friend Taylor for letting the man off thus easily. If he could only have delayed the fellow, on some pretext or other, until a warrant for his arrest could have been obtained by one of his previous victims and sent on, this series of bulletins might have come to an end.

It seems that the man forgot his engagement in Englewood, which he mentioned to Mr. Taylor, but he didn't forget to call on Mr. Taylor's neighbors, Messrs. A. E. & J. H. Christie, also carriage and sleigh-builders; and the following letter written by that firm, on the following day, to Messrs. A. S. Flandrau & Co., of New-York, contains an account of what next happened:

NYACK, N. Y., Aug. 15, 1884.

MESSRS. A. S. FLANDRAU & CO.—GENTLEMEN: A party was here on Thursday selling what purported to be a receipt for a Wood-Filler, and shop-rights to use it, who showed, among others, an agreement signed by your firm purchasing a right to use it. The writer examined the signature, and, if not genuine, it was a first-class imitation of it as written by your Mr. Wilson. Is it a genuine article, or is this the party mentioned in the August *Hub* under heading "Another Lazier in the Field?"

Respectfully yours,

A. E. & J. H. CHRISTIE.

IV.

The above letter of inquiry was immediately forwarded to us by Messrs. A. S. Flandrau & Co., accompanied by a copy of their reply, as follows:

NEW-YORK, Aug. 18, 1884.

MESSRS. A. E. & J. H. CHRISTIE, NYACK, N. Y.—GENTLEMEN: We have never given a recommendation for any Wood-Filler, and own no rights in any. We use but little, and that has always been Valentine's. He has evidently forged Mr. Wilson's (the writer's) signature. * * * *

Yours respectfully,

A. S. FLANDRAU & CO.

V.

Still forgetful of his engagement in Englewood, the swindler seems at this point to have been overcome by the heat in this section, and to have taken a flight westward. We are not quite sure of this, as some of the dates are uncertain, but the next witness dates his postal-card Aug. 16th, and writes as follows:

MANKATO, MINN., Aug. 16, 1884.

EDITOR OF THE HUB—SIR: We will in a few days send you a few words in regard to the manner in which the traveling swindler made himself acquainted with us.

Yours respectfully,

H. P. JENSEN & CO.

VI.

This next letter also comes from Minnesota, and is dated three days later:

ST. PAUL, MINN., Aug. 19, 1884.

EDITOR OF THE HUB—DEAR SIR: I see in your August number an account of a traveling agent selling receipts for a wood-filler. He has called on me. The inclosed card shows more about him. He did not give his name, but agreed to call again during the day (Aug. 18th), but did not. If this information is of any good, all right.

Respectfully yours,

ANDREW NIPPOLT.

Carriage and Sleigh-builder.

VII.

The card referred to in the above letter from Mr. Nippolt, bears upon its face the following words, printed in black and gold:

"OSGOOD WOOD FINISH AND PAINT CO'S
First Coat and Wood-Filler
Is the Best, the Cheapest and the Quickest
FOR OLD OR NEW WORK.
140 Bond Street,
CINCINNATI, OHIO."

VIII.

Upon the reverse of the card above described, appear the following printed testimonials, which we reprint *verbatim et literatim*!

Osgood Wood Finish and Paint Co.

SOUTH BEND, IND.

In reply to yours of the 13th, we would say, we are using your First Coat and Filler, and cheerfully recommend it as being first-class, and a great saving.

Yours respectfully,

STUDEBAKER BROS. MFG. CO.

Osgood Wood Finish and Paint Co.

NEWARK, N. J.

We take great pleasure in stating that your First Coat and Filler gives us perfect satisfaction.

J. M. QUIMBY & CO.

Osgood Wood Finish and Paint Co.

COLUMBUS, OHIO.

We are using your First Coat and Filler, and find it the most durable thing we have ever used for that purpose, and a saving of 33½ per cent.

COLUMBUS BUGGY CO.

Osgood Wood Finish and Paint Co.

CHICAGO, ILL.

After a practical test we find a large saving, both in time and material, also doing first-class work.

Yours respectfully,

ABBOT BUGGY CO.

Osgood Wood Finish and Paint Co.

BUFFALO, N. Y.

Your First Coat and Filler fills the bill.

HARVEY & WALLACE.

Osgood Wood Finish and Paint Co.

PHILADELPHIA, PA.

We find we can use your First Coat and Filler with satisfaction to ourselves and our trade, with considerable saving on old or new work.

Truly yours,

W. D. RODGERS, SONS & CO.

Osgood Wood Finish and Paint Co.

QUINCY, ILL.

Your Filler is satisfying us in every respect. Yours,

E. M. MILLER & CO.

Osgood Wood Finish and Paint Co.

We have given your First Coat and Filler a thorough test, and find it perfectly satisfactory in every respect.

J. B. BREWSTER & Co.

Osgood Wood Finish and Paint Co.

CINCINNATI, OHIO.

We are highly pleased with the working of your First Coat and Filler. After a careful test in regard to its durability we recommend it.

GOSLIN & Co.

IX.

If we are correct in identifying the caller whom Mr. Andrew Nippolt received in St. Paul, Minn., on Aug. 18th, with the one who called on Messrs. A. Taylor & Son and A. E. & J. H. Christie, in Nyack, N. Y., on Aug. 14th, it would seem that the speed of his flight westward was nearly equaled by that of his return, for on Aug. 28th he again appears in Connecticut, as will be seen by the following communication from our friend, Mr. Charles F. Hopwood:

LAKEVILLE, CONN., Aug. 29th, 1884.

EDITOR OF THE HUB—DEAR SIR: The Osgood Wood-Filler swindler was here yesterday afternoon, and succeeded in swindling our friend Stuart, the carriage-builder, out of \$10, for a receipt and shop-right to use it.

He describes him as follows: About 30 years of age, 5 ft. 5 in. in height, clean shaven, prominent cheek bones and large Roman nose. He has a slight impediment in his speech. He was dressed in a fancy check suit, with high vest, light Derby hat, plaid necktie, and a scarf-pin representing a painter's palette. He calls himself W. F. Campbell, and has that name signed to his formulas; but as the name is written, he can change it as often as he wishes. He bought a ticket to Rhinecliff, N. Y., on the 6.40 P. M. train, saying he was going to Kingston, N. Y., and from there was going *via* the Wallkill Valley R. R. to the Erie R. R., and work the towns along the Erie. He had a large batch of testimonials purporting to be signed by prominent carriage-builders, including Brewster & Co., J. B. Brewster & Co., R. M. Stivers, Henry Hooker & Co., Brockett & Tuttle, and others. He lays great stress on a testimonial of the Columbus Buggy Co., who, he says, have used it exclusively for years.

I inclose you the printed formula which he sells, and think that if you will publish it in full it will put a stop to his little game, as no one will buy a secret with which he is already acquainted.

Very truly yours,

CHAS. F. HOPWOOD.

The "printed formula" to which Mr. Hopwood refers is identical with the one published in our last number, page 412, with the single exception that the word "isinglass" has been written in after the printed word "gelatine;" and the signature "W. F. Campbell," is the same as the photo-engraved reproduction presented on the same page, excepting that the word "Agent" is added.

X.

We next hear from him in Long Island, N. Y., where our friend Blydenburgh missed a capital opportunity to render his name famous, as he relates below:

RIVERHEAD, L. I., N. Y., Sept. 4th, 1884.

EDITOR OF THE HUB—DEAR SIR: Yesterday, soon after, or about 1.30 P. M., a young man called upon me, introducing himself as the representative of the Osgood Wood-Filler and Paint Co. A sample of the wood-filler was shown me, a light-colored liquid, resembling mucilage in color and consistency, and kept in a bottle about five inches long, and having a very large mouth, or the bottle being nearly as large at the top as at the bottom.

The man is rather under average size, cleanly shaven, with sharp face, and has a very peculiar voice, and an unusual—apparently foreign (English) accent, but he is rather a pleasing talker. He first shows the sample of filler, then a list of prominent carriage manufacturers who are using it regularly on all their best work, such as both Brewsters, of New-York; Caffrey, of New Jersey; The Columbus Buggy Co., of Ohio; Brockett & Tuttle, of New-Haven, and many others, with strong testimonials from other reputable builders.

My suspicions were aroused by such a strong array of such prominent names, and by the fact that a paint company should not make paints, but simply sell the receipt. No doubt I showed signs of suspicion, for the chap made haste to take the first train to New-York, and did not return to my office as he agreed to do when he left my house (he called at my home). After he had left my gate, I remembered that an article had appeared in *The Hub* about a swindler. I immediately referred to the September number, and found that I had barely escaped the fate of many others; and I immediately telegraphed you, hoping to get instructions to have him arrested, but not having swindled me I had no right on my own account. I now regret that I did not purchase, and then have the arrest made. His victims on Long Island, to my knowledge, include one each in Babylon, Bay Shore, Islip and Patchogue.

Respectfully yours,

C. M. BLYDENBURGH.

We promptly responded to Mr. Blydenburgh's telegram, but it was too late. If he had only been placed under arrest, we would gladly have undertaken all further responsibility.

XI.

The following letter tells the story of another of his Long Island calls:

HUNTINGTON, N. Y., Sept. 5, 1884.

EDITOR OF THE HUB—DEAR SIR: That "Osgood Wood-Filler Fraud" is on Long Island, unless he has left to-day. A man answering your description

exactly, with his "little block of wood" and two or three painted spokes, and a sample of his stuff in a bottle, called at my house yesterday, Sept. 4th.

I am at present ill, and my wife told him he could not see me. Half an hour afterward he called again and insisted on seeing me, but was told he could not come in. He showed his card, on which was printed "The Osgood Wood-Filler." My wife wanted to take the card, but he drew it back, saying he would not leave it if he could not see me.

Now, if this fellow is a fraud and any body wants him, it ought to be no trouble to catch him.

Yours truly,

WM. T. DOWNS.

We beg to assure Mr. Downs that lots of his fellow members in the trade want the fraud he alludes to, but it does not logically follow that it is "no trouble to catch him" because he is known to have been in Huntington on Sept. 4th. He is a lively sort of flea.

XII.

We conclude by appending a letter which describes a swindler who appeared in Richmond, Va., during the month of July, and who is evidently identical with the "lively flea" who sought Mr. Downs' sick-bed.

RICHMOND, VA., Aug. 30, 1884.

DEAR HUB: Inclosed please find a letter referring to the Osgood Wood-Filler concern. If you have evidence that there is no genuine concern of this kind, and no harm will result to any meritorious concern of this kind, you may publish it, if you think proper. I am now persuaded it is the same thing referred to by your correspondent in Belleville, Ill., as published in your August number, page 339, for this reason: This party put some of his preparation on a piece of wood to show its workings; and after rubbing it in for some time, he handed it to me. After inspection I carried the piece to the hydrant and turned on the water, and it dissolved like glue. Hence my opinion of its worthlessness. The party claimed I did the thing injustice, as it should have been allowed ten hours to harden. I would not have invested if results had been different, but it seems that large numbers have. It is the interest of all to expose fraud, so I interest myself to give you the following description of his visit here.

He appeared in this city about a month ago. I was called on by this "agent," who exhibited testimonials from all the best carriage-makers in the country, and also a large bundle of signed contracts, many quite soiled by much handling, from firms well known throughout the country. I listened attentively to all he had to say, and a very plausible story he told. Having no disposition to take to the quick or cheap methods of painting, I did not invest; but I was shown a contract signed by one of our firms here, from whom he stated he received \$15.00. I was also shown a letter of introduction given him by a leading firm in Norfolk, whose genuineness I did not doubt. This, with the testimonials and contracts which he had, was well calculated to get for him a patient hearing, and, but for your reference, I would never have thought him a swindler. If this is really the same man you have referred to, he would never be taken, from his appearance or manner, as a sharper, but as a practical painter, which he professed to be. His dress was ordinary, and his manner simple and artless, which was well calculated to produce the impression of honesty.

You are certainly doing a good work in exposing the fraud, not alone for the money he receives for his worthless receipt, but incalculable harm might result from an effort to apply it.

Yours truly,

W. C. SMITH.

* * *

We must admit that we are rather annoyed at the good-natured way in which our friends the carriage-makers have let this fellow slip through their hands when they have thus had him in their power. *The Hub* is trying, in this matter, to help the carriage-makers to help themselves, and we wish they would try to do their part. We don't think they have done so, thus far. Well, perhaps they will, after reading this fifth bulletin of ours on the subject. We don't despair yet, but propose to keep on publishing bulletins for nine years to come, if that should prove necessary, as it did in the case of Lazier. We ought to be able to stand it as long as the carriage-makers can, but we must confess that we haven't the same patience that they exhibit.

In concluding, we ask our readers to bear the following in mind. When next the whereabouts of this swindler are ascertained, let the carriage-builder, whether a victim or otherwise, promptly telegraph *The Hub* that fact, at our expense, and we shall be prepared to take action promptly. We are determined to stop the course of this fellow, and have retained Mr. Huntington, whose efforts in the Lazier case were crowned with such success, as counsel in this matter also.

THE PURSES OF JOHN BULL AND BROTHER JONATHAN.

FOR a nation in its infancy, the United States has not done so badly in the accumulation of the needful, as the following figures will show: It is estimated that there is a grand total of property in the United States of \$49,770,000,000. Great Britain is credited with about \$40,000,000,000, or nearly \$10,000,000,000 less than the United States. The wealth per inhabitant in Great Britain is estimated at \$1,160, and in the United States at \$995.

SUMMER CARRIAGES: SEASON OF 1884.

INTERVIEW WITH A LEADING NEW-YORK MANUFACTURER.

"Yes," said one of the partners in a leading New-York carriage house, "the Village Cart is going. Its popularity is gone, its fashionableness is on the wane, and in a few years it will be forgotten. Yet it was much liked when it first made its appearance."

"Why?" said the reporter. "What's the matter with Village Carts?"

"Nothing," said the manufacturer, with a sigh, "nothing, except this—that it is difficult to balance them. Trotting over Belgian block pavements in the city is not exactly a thing of joy, but it's just a bed of roses to trotting over the country roads in hilly places, and there is exactly where the grief came in. The nice people, instead of going to Newport and Long Branch, where nothing but parade vehicles of a very stylish description suit the avenues, have got into the habit of going to quiet places in the Berkshire Hills and other mountainous regions, where driving from view to view is one of the chief enjoyments of the summer; and the Village Cart, particularly the kind affected by ladies, jolted the occupants so severely that a day's pleasure was equivalent to a broken back, and a series of driving parties and picnics were nearly the same thing as a fall from a cliff. So, this year, the inquiries are all for light four-wheelers."

"How about the Hooded Gigs, that in the spring were going to make a revolution in driving matters?"

"They have not done it. They are too heavy. The fact is that, in summer vehicles, we have to combine English style with American toughness and lightness. The roads in England are so perfect that their heavy vehicles can bowl along without difficulty. But here there are few summer resorts, except Long Branch and Newport, where one can drive heavy traps. Our 'new summer carriage' is a combination of the Victoria with the Phaeton as regards the body, but the wheels are distinctly of the American type, with narrow tire, slender spokes and small hub. The size of the wheels, however, is English, as a matter of course, because the body is low. It is charmingly easy to enter on that account, and there is, moreover, a broad step. Its openness makes it airy, and the occupants are protected from the dust and mud of the wheels by the broad curving wings. The seats are luxuriously comfortable, and this carriage can be driven with perfect propriety by either servant, lady or gentleman. Observe the double back support, comfortably cushioned, and artistically rounded. Any one who is accustomed to driving will see at a glance that, on a mountain road, this trap, with its four elliptic springs, would be easy and free from the jolting that has ruined the reputation of the Village Cart."

"With all these virtues, the new summer carriage must be exceedingly expensive?"

"No; on the contrary it is singularly cheap, considering its merits and its undeniable style. A still more stylish carriage though, also furnished with light American running-gear, is the Summer Cabriolet. Just notice the manner in which the body is attached to a frame which is fastened to the springs. The old French Calèches and early Italian carriages had something similar. It is a revival of an old model. It has taken surprisingly with the public. The back is solid, and in many respects this is a charming carriage for ladies' use in hill localities. But it can only be driven by a coachman."

"We have also an American country family Extension-top Park Phaeton. You need not sneer at the word Phaeton, though it is true that it is in reality only a modification of the Double Buggy. It is so convenient that large numbers are sold. But in my estimation it is not to be compared with the Rockaway, which is the pearl of American family carriages. It has positive style about it. The lines are good, the seats comfortable, and though there is ample protection from the sun, wind and rain, it is so open and airy as to be, of all carriages, the most agreeable in hot weather. We are also constructing, specially for ladies driving on mountain roads, a Spider Phaeton with American wheels and springs. While the Rockaway is necessary for the family, the ladies are not satisfied without something for personal driving, which is the special requirement of our times."

"But what has happened to T-carts? Have they entirely disappeared?"

"No, nor will they ever; for, taking one consideration with another, there is no vehicle that so perfectly combines utility, comfort and good style. But we have had to modify them for the country. The best families are seriously giving up the show places, and going into the wilderness, so to speak, to drive, fish, ride, shoot, and enjoy themselves in an inexpensive, natural, easy way; and the roads there are unsuitable for the usual styles of T-carts. We have had to substitute American springs and running-gears, and to make the bodies as light as possible. The best of these modifications might be called the 'American Phaeton.' There is another, not so stylish, which we call the Side-bar T-cart. It is popular, but its lines are distressingly straight, and they are repeated in a way that emphasizes them to the eye. It is not so easy to enter as the

other one, which is bound to make itself generally used for gentlemen's summer driving?"

"What about Char-à-bancs, and other nondescripts?"

"Well, a Char-à-banc is in reality the same thing as a Wagonet. If you place the seats back to back, it becomes the Irish Jaunting Car. Cover over a Wagonet, and it becomes that highly popular and useful vehicle the Omnibus. Where people entertain crowds of friends at a Newport or Long Branch villa, the Omnibus and the Wagonet are necessities. For Newport I need not say that the supremely swell carriages are Barouches and Double-suspension Victorias. As they are for parade purposes, we have made no attempt to modify them, and they remain grand, heavy, and stylishly slow."—*New-York Tribune*.

THE APPROACHING EXHIBITION AT NEW-ORLEANS.

THE approaching World's Exhibition at New-Orleans, Louisiana, for which Congress has happily made generous provision, seems particularly timely, in view of the important commercial advantages which must inevitably follow the present Southward tendency of material development, such as the improvement of the Mississippi River and its practical prolongation to the Pacific by the opening of the Isthmus of Tehuantepec, the advance of our railway system to the Mexican border, the extension of five trunk railways from the Rio Grande to the City of Mexico, the projection of an intercontinental railway through Southern Mexico and the fourteen other republics of Central and South America, the piercing of the Isthmus of Panama by a tide level canal, the connection of our Southwestern railway systems with the Pacific ports by the construction of transcontinental railways across Mexico, the proposed establishment of new steamship lines from the mouth of the Mississippi to Spanish-American ports, and other great works soon to be inaugurated. The exhibition is located where it will do the most good by helping to build up two weak sides of our present foreign commerce—that of Spanish America and the nations and islands surrounding the South Pacific. Director-General E. A. Burke, in a recent interview, says:

"The great popularity of the Exhibition is largely owing to the universal demand for new markets as an outlet for our surplus manufactures. The advocates of both high and low tariff believe the time has now come when the comparatively unsupplied but inviting markets of Spanish and Portuguese America should be occupied by our merchants. In Mexico the days of wooden ploughs are not yet ended. In Central and South America may be found a similar condition of affairs; in brief, they constitute a natural outlet for our farming implements, iron manufactures, cotton and woolen goods, and the thousand and one products of our invention and skill. Now, New-Orleans is the natural gateway to those countries, both by land and water. An exhibition held there will create a tidal wave of American trade which should have been started years ago. Our total exports of domestic merchandise during the last fiscal year were \$804,000,000 in value, of which eighty per cent. went to Europe on the East, and less than ten per cent. to American countries on the South. Such a one-sided foreign commerce is a discredit to our boasted enterprise."

NOW IS THE TIME TO BUY TOOLS AND MACHINERY.

"Now is the time to invest in tools and machinery," said a prominent manufacturer of tools and machines a short time ago. "We are making to lay up a stock," he said, "and are keeping our men on the prospects of future sales, instead of paying them from the profits of contracts already made."

This company could afford to pay hands, and store up a stock of finished work, as it had done before; but the manufacturer chose rather to sell at a low price than to pay insurance and the expense of the unavoidable deterioration of finished goods kept in stock. Lower prices and better terms—where terms are offered—can be obtained now than at any time within two or three years. Most men engaged in business requiring manufacturing machinery or machine-tools can anticipate their ordinary needs for a twelvemonth hence, and so can make their preparations for the reflux tide of demand that is as certain to come as is the spring to succeed to winter. Every period of depression in business has been followed by a corresponding uprising, and there is no valid reason for believing that this present season of quietude is to sink into one of stagnation. At all events, a business, to live at all, must have the means, and there appear to be good reasons for advising the purchasing or the contracting for of machine-tools and manufacturing machinery now, while in those branches of business there is a temporary lull.—*Scientific American*, Aug. 9.

REPRESENTATIVE CARRIAGE FACTORIES.

PAPER NO. IX.

THE ATKINSON & PHILIPSON WORKS, NEWCASTLE, ENG.

THE representative European coach factory of half a century or more ago, presents many features in marked contrast to the modern American carriage factory. The latter, as now constructed, whether located in country or city, usually combines under one and the same roof all its principal workshops, treated merely as departments, together with its business offices, and often, also, its showrooms; and in the best modern representatives of the class, the arrangements for successively transferring work from one mechanical department to another with the minimum expenditure of time and energy, receive foremost and special attention. The European factory, on the other hand, usually comprises a collection of workshops in buildings more or less separate and distinct from one another, but often surrounding an open courtyard, as in the case of the Atkinson & Philipson works, established just ninety years ago, which form the subject of our present paper. This arrangement, in many cases, is the outcome of gradual growth from small beginnings, and the aggregation of increased facilities; but in many other instances it is the result of preference and forethought on the part of the proprietor; and comparatively new factories, constructed

premises. The draft-room is cut off from the body-shop (building No. 2), and fitted with sliding blackboards and all modern conveniences. Brown roll-paper is usually employed, after the French system, for permanent drawings in full size.

In addition to the works illustrated, the firm also occupy, in another part of the city, further premises of nearly equal size, devoted solely to the storage of second-hand carriages; and their usual stock of new and second-hand vehicles aggregates, we are informed, about six hundred.

The productions of the house are widely varied, and, indeed, include every variety of wheeled vehicles from a child's perambulator up to a Mail Coach. They also control a number of specialties which deserve mention, including wheeled bath-chairs, both hand and pony, Cape Carts, registered designs of Village Carts, Phaetons, Landaus, Victorias and Omnibuses (we present a specimen of one of the latter in Fig. 2), trucks and vans for the postal service, an improved pattern of Prison Van, further described below; and a new Ambulance Van, with stretcher couches, devised by Mr. Wm. Philipson (illustrated in Fig. 3), which also merits more than passing notice.

Fig. 2, accompanying, represents the new design of omnibus above alluded to. About eighteen months ago the firm constructed six new omnibuses for the service of the London Tramways Omnibus Company, specially designed for running as connecting links between the various London tramway termini. The chief aim was to reduce weight, and they succeeded in bringing down each omnibus to 23 cwt. In addition to



FIG. 1. THE ATKINSON & PHILIPSON COACH WORKS, NEWCASTLE, ENG.

(See description accompanying.)

on this system, may be seen in London and vicinity,—for instance, that of Mr. Alexander Mackenzie, at Walnut-street Walk, Kennington Road, London, which was built only about ten years ago.

The Atkinson & Philipson works, at Newcastle, constitute one of the oldest, largest and best-known coach and harness manufactories in England, and therefore serve admirably to stand as a representative of the class. Characteristic features of exterior arrangement and construction are clearly indicated in the accompanying illustration, Fig. 1. Entering from the street through an arched driveway, one passes into a large court, surrounded on all sides by the various workshops, arranged in a hollow square, while at the rear of these buildings, at the two sides, are further buildings for manufacturing and storage purposes. Referring to the numerals which will be observed in this cut, 1, 1, 1 indicate the business offices; 2, 2, 2, the body and carriage-part shops; 3, the timber yards; 4, the harness-shop; 5, 5, the paint-shops; 6, 6, 6, the smith-shops, furnished with thirty smiths' forges, supplied with fan blowers; 7, the trimming-shop; and 8, the street office and carriage entrance. The wood and paint-shops, as will be noticed, are three stories high, and a light iron bridge connects the second stories.

The mechanical appliances employed include the following machinery and labor-saving devices, namely: a Hawthorn & Co. steam-engine of 40-horse-power (located between the buildings numbered 5 and 7); circular and vertical and band saws, lathes and drilling machines, furnaces for spring and axle making, the usual apparatus for heating and bending tires, and a variety of American special machines for coach-builders' use, including paint mills, Kritch's patent wheel-boxing machines, etc., etc.

The provisions against fire are very complete, including a fire engine; and a resident superintendent and watchman are constantly on the

originality of design, they displayed marked improvements, which obtained for them immediate popularity, that has in no wise diminished; and the builders have since been entrusted with the construction of a further number. Each is constructed to carry 26 passengers, in addition to the driver and guard (28 in all); and, as in the former vehicles, the outside passengers have garden seats running across the roof. The chief difference in this part of the omnibus is that the driver's-seat is brought back and occupies a portion of the roof. The garden seats are varnished in the natural color of the wood, and in comfort are more like chairs than seats on a public carriage. From the ground to the large and convenient steps is but a trifling distance, and the ascent thence to the roof is accomplished with ease. The interior is commodious and comfortable, with ample knee-room; and the upholstering is tastefully executed in brown figured plush. The sides and roofs are in varnished wood, relieved with lines of black and gold molding, and free ventilation is provided for in the sides and front end. The body panels and gearing are painted brown, with black and orange lines, and lettered in gold and in tints that harmonize with the color of the painting.

For some time past, Messrs. Atkinson & Philipson have been experimenting with a view to the practical application of the electric light and bell to their carriages. At the last Sportsman's Show they exhibited a Brougham fitted with the electric light, and we are informed that they have applied electric bells to other vehicles.

Their Prison Van above alluded to—or "Black Maria," as we usually term it in America—is characterized by compactness and convenient arrangement. The body, which is large and solid, has at the front a seat for the driver and two constables, and from this seat is worked a powerful lever brake. To the footboard are fitted massive lamps. A raised

molding runs around the van, and at the center takes the form of a circle, in which is painted in gold the monogram "V. R.," making a pleasing combination with the ground color, which is dark green, relieved and picked out with black. At the back is a large step, intended for a policeman to stand on, from which a strong iron step-ladder leads to the roof.



FIG. 2. OMNIBUS.

Here, also, is the door, and upon the panel are emblazoned the Corporation arms, surmounted by a smaller monogram "V. R." This door it is impossible to open or close without ringing an alarm bell. The interior arrangements include a passage of sufficient height and width to allow a man to walk from end to end without inconvenience, and, on each side,

display of their productions at various fairs and world's exhibitions, in acknowledgement of which they have received numerous prize medals and diplomas, testifying to the artistic design, mechanical excellence and fine finish of their work.

Great attention has been given to the education of their mechanics and apprentices, and their works might not inaptly be characterized a training school for coach-builders. The apprenticeship system may be seen here in full working order, and the results appear to be all that could be desired. For twenty-four years past classes have been carried on for their instruction in technical matters; and the workmen's zeal has been further stimulated by wisely-devised prize competitions. Some idea of the beneficial results of this systematic attention to education may be gathered from the fact that, at the examinations by the London Coach-Makers' Company and the City Guilds, in June, 1881, four medals, £14 in cash prizes, and nine certificates, were awarded to employes of this one house. Two prizes of the Coach-Makers' Company went to the same house in the competition of the present year. Mr. Philipson may well be proud of such testimonials to the wisdom as well as liberality of his efforts in this direction. Through his instrumentality, moreover, a large and valuable library of technical books has been collected for the free use of his employes; copies of all the trade journals are supplied for the reading-room; a trained fire brigade has been made up from among the workmen; and a benefit fund has been established, to provide for them or their families in case of sickness or death.

So public-spirited a gentleman as Mr. Philipson is naturally an active and efficient member of the London Coach-Makers' Company, and he is



FIG. 3. AMBULANCE VAN, DEVISED BY MR. WM. PHILIPSON.

there are five cells for the reception of prisoners. Each of these cells is fitted with a seat, and the door is secured by a spring-lock and iron cross-bar, and has also a movable slide that enables the warder to watch the proceedings of the inmates. The springs, axles, wheels, etc., composing the gearing are manufactured from the best materials, and are exceedingly strong; but at the same time great attention has been given to their weight, and the vehicle as a whole is as light as is consistent with the work it will have to perform.

Before concluding this notice of Messrs. Atkinson & Philipson's works, it seems only proper that we should give a brief account of the history of this noted firm, which, for a half century past, has held a prominent and worthy position among the leaders of the trade in England, and now includes among its members relatives removed by three generations from the original proprietor.

The house was established in 1790 by the great-uncle of Mr. John Philipson (managing partner for the past thirty years), who was succeeded by Mr. Geo. Hare Philipson (father of the present head of the firm), whose energetic management was largely instrumental in building up the business in pleasure vehicles, and in giving the house its wide and favorable reputation. At the beginning of the present century, the firm built Mail Coaches for the principal lines in the North of England, including the York and Edinburgh mails; and, later on, when these were supplanted by the iron horse of Stephenson, they promptly followed the new sign of the times and went largely into the manufacture of railway carriages, some of which are still running, after active service for thirty or thirty-five years. Latterly, however, owing to the rapid growth of their business in pleasure carriages, their works have been devoted to this specialty; and local trade and reputation have gradually extended until their customers are now widely distributed, not only in London and the provinces, but also in various parts of Europe, Asia and Africa.

The house has always been noted for its enterprise in advertising, and the favorite form in which this trait has been shown is in the prominent

one of six English coach-builders who have been elected by the Carriage Builders' National Association of the United States to Honorary Life Membership, the other five English members being Messrs. Herbert Holmes, Geo. N. Hooper, Henry Mulliner, Thomas R. Starey and Geo. A. Thrupp. Mr. John Philipson's eldest son, William, who attained his majority in February last, has since been admitted to partnership, as the representative of the fourth generation of the family connected with this house, and he possesses the natural aptitudes, together with education and training, which render him a worthy co-worker of his father in the good work which the latter is doing and proposes still to do.

We will only add that any of our readers who may happen to pass through Newcastle, on their way from London to the North, will do well to make a mental memorandum of Messrs. Atkinson & Philipson's address, for they may rely upon having a cordial reception, and being shown a model and representative English coach factory, which the preceding illustration can only imperfectly suggest.

ENGLISH CUSTOMS REGARDING USE OF PRIVATE COACHES ON SUNDAY.

THE English, it may be said, are on the whole very considerate in sparing their servants needless Sunday work. They contrive to go to church a good deal, and contrive at the same time to give coachmen and footmen and grooms and horses pretty complete rest on that day. It is the rule with many families in London, that the carriage shall never go out on Sunday. In the country such a vacation cannot generally be given, the distance to church often being too great for walking; but drives for pleasure (unless it be a pleasure to go and hear service and sermon) are discouraged. Very fine ladies who dine out in London on Sunday evening may be seen driving in public hansoms rather than disturb their own establishments.

PROPOSED AMERICAN EXHIBITION IN LONDON.

It looks now as if the American Exhibition of the Arts, Manufactures, Products and Resources of the United States, proposed to be held in London, England, in the spring of 1886, were destined to become a reality. We are heartily glad of this, for, under good management, it can hardly fail to prove of great benefit to both countries, which now no longer occupy the relations of Mother Country and rebellious daughter, but the position of sister governments, with mutual hopes and aspirations, and a common interest in agricultural and manufacturing industry so closely allied that whatever promotes the health of one must ultimately benefit the other. During the past month we have received from the Executive Council or Board of Management, in London, two pamphlets descriptive of the enterprise, one defining the objects of the Exhibition and regulations for exhibitors; and the second containing a large number of newspaper extracts showing the favorable temper of public opinion in both Great Britain and the United States relative to the project. We are happy to learn, from one of these pamphlets, that the carriage and accessory trades of this country have responded very promptly to the introductory circular of the Council, and that the following well-known firms have already made application for space, namely: the Abbott Buggy Co., of Chicago; Columbus Buggy Co., Columbus, O.; Concord Axle Co., Penacook, N. H.; R. Cook & Sons, carriage axles, Winsted, Conn.; Crane & McMahon, wheel materials, New-York City; Detroit Bending Co., carriage woodwork, Detroit, Mich.; A. S. Flandrau & Co., carriages, New-York City; G. N. French & Son, patent carriage springs, Grafton, N. H.; J. Theo. Gurney, public cabs, Boston, Mass.; Harrison Brothers & Co., paints, Philadelphia; New-York Sarven Wheel Co., New-York City; A. N. Parry, carriages, Amesbury, Mass.; Pope Mfg. Co., bicycles, Boston, Mass.; Studebaker Bros. Mfg. Co., wagons and carriages, South Bend, Ind., and Chicago; Vacuum Oil Co., Rochester, N. Y.; and Valentine & Co., varnishes, New-York City.

Any of our readers who may likewise desire to secure space for the exhibit of their productions, should promptly apply for blank forms of application to Genl. C. B. Norton, Secretary, No. 7 Poultry, London, E. C., England; or to the American Legal Counsel of the Exhibition, Messrs. Blatchford, Seward, Griswold & Da Costa, No. 29 Nassau-street, New-York City.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING AUGUST, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between July 29th and August 26th in the current year:

JULY, 29th, 1884.

Carriage Spring.....	S. Atkinson.....	Hulton, Pa.
Vehicle Fifth-wheel.....	J. H. McCabe.....	St. Louis, Mo.
Wagon End-gate.....	{ W. R. White and O. Berggren,	Aurora, Neb.
Rein Guard for Whiffletree.....		
Sweat-pad for Cart Saddle.....	A. L. Maclachlan.....	Melrose, Mass.
Vehicle body Corner-iron.....	D. P. Ferguson.....	Atlanta, Ga.
Vehicle Brake.....	W. W. Newcomb.....	Bradfordsville, Ky.
Vehicle Seat-lock.....	J. K. Gray.....	Montezuma, N. Y.
Side-bar Vehicle.....	{ G. A. Weyland and L. Roeder,	Booneville, Mo.
Vehicle Spring.....		
Vehicle-wheel Sand-band.....	E. P. Poindexter.....	Woburn, Ill.
Display Wagon.....	J. M. Hoffman.....	Indianapolis, Ind.

AUGUST 5th, 1884.

Carriage Axle.....	C. Zens, ¹	St. Louis, Mo.
Axle Lubricator.....	W. Cole, Jr.....	Keokuk, Iowa.
Side-spring Carriage.....	A. P. Marshall, ²	Lancaster, N. H.
Road Vehicle.....	{ F. J. H. Axford.....	Cornwallis, Nova Scotia.
Vehicle Spring.....		
Two-wheeled Vehicle.....	F. L. Perry.....	Bridgeport, Conn.
Wagon-body Attachment.....	A. A. Holt.....	Fitchburg, Mass.
Wagon Brake.....	R. J. McFarland.....	Paris, Tenn.
Road Wagon.....	C. Schumacher.....	Frankfort, O.

AUGUST 12th, 1884.

Axle Lubricator.....	A. D. Howe.....	Coshocton, O.
Wagon End-gate.....	G. W. Friend.....	Tarkio, Mo.
Harness Attachment.....	E. F. Pflueger.....	Akron, O.
Harness Sweat-pad.....	H. C. Babcock.....	Hartford, Conn.
Horse Detacher.....	O. W. Eisenhart.....	Tremont, Pa.
Wheel Hub.....	S. Davis.....	Philadelphia, Pa.

Thill-coupling.....	E. L. Baker.....	Syracuse, N. Y.
Vehicle Running-gear.....	E. Berry.....	Henderson, Ky.
Side-spring Vehicle.....	B. M. Soule.....	Cedar Rapids, Iowa.
Vehicle Top.....	J. Sebastian.....	New-York, N. Y.
Vehicle Torsion Spring.....	P. J. Kern.....	Frankfort, Ind.
Two-wheeled Vehicle.....	T. J. Gibbons, ³	Union City, Ind.
Vehicle Wheel.....	E. Huber.....	Marion, O.
" " " " " " " " " " " "	" " " " " " " " " " " "	" " " " " " " " " " " "
Wagon-brake Lever.....	W. Cardwell.....	St. Joseph, Mo.
Road Wagon..	J. S. Denny.....	Campbellsburg, Ind.

AUGUST 19th, 1884.

Axle-box.....	C. H. Smith, ⁴	Norfolk, Conn.
Side-spring Buggy.....	H. W. Hamelle.....	Norfolk, N. Y.
Carriage.....	J. F. Hurtig.....	St. Louis, Mo.
Carriage Spring.....	A. A. Stimpson.....	Montpelier, Vt.
Carriage Trimming.....	J. P. Hagan.....	Salisbury, Mass.
Vehicle Fifth-wheel.....	{ M. H. Lane and R. W. Mayhan,	Kalamazoo, Mich.
Vehicle-hub Sand-band.....		
Physician's Buggy-case.....	J. B. Vaughan, ⁵	St. Louis, Mo.
Thill-coupling.....	E. H. Hollister.....	Kenosha, Wis.
Vehicle Running-gear.....	M. Frear, ⁶	Rosendale, N. Y.
Vehicle Spring-coupling.....	H. W. Pell.....	Rome, N. Y.
Two-wheeled Vehicle.....	J. Constant.....	Decatur, Ill.
" " " " " " " " " " " "	J. G. Gay.....	Ottawa, Ill.
" " " " " " " " " " " "	F. A. Knox.....	Woodland, Cal.
Wagon Brake.....	J. D. Eufts.....	Jackson, O.
Combined Wagon-jack and Tire-tightener.....	{ M. W. Coon..	Walla Walla, Wash. Ter.
Wagon Jump-seat.....		
Wagon Standard.....	J. F. Fowler.....	Alliance, O.
	W. S. Young.....	Gillespie, Ill.

AUGUST 26th, 1884.

Wagon End-gate.....	B. L. Byers.....	Malvern, Iowa.
Carriage Pole or Shaft.....	J. M. Dille.....	Cooperstown, Penn.
Thill-coupling.....	G. E. Smith, ⁷	Racine, Wis.
Vehicle Rub-iron.....	J. H. Blackmore.....	Defiance, O.
Vehicle Sand-band.....	F. S. Rolfe.....	Waterbury, Vt.
Side-spring Vehicle.....	{ D. Buckler and E. H. Pelzer, ⁸	Ionia, Mich.
Vehicle Spring.....		
" " " " " " " " " " " "	A. L. Hoppinger.....	Port Clinton, O.
" " " " " " " " " " " "	P. J. Kerne.....	Frankfort, Ind.
" " " " " " " " " " " "	G. W. Warren ⁹	Bristol, Ind.
Two-wheeled Vehicle.....	W. Clucas.....	Cleveland, O.
" " " " " " " " " " " "	M. G. Hubbard.....	Norristown, Pa.
Wagon Bolster-spring.....	G. E. Blaine, ¹⁰	Chattanooga, Tenn.
Wagon-top Frame.....	F. M. Mahan.....	Chicago, Ill.
Whiffletree.....	O. Olney.....	McPherson, Kan.

- ¹ Assignor of one-half to F. J. Dexter, same place.
- ² " to himself and G. R. Eaton, same place.
- ³ " of one-half to T. Jones, same place.
- ⁴ " of one-half to E. D. Ives, same place.
- ⁵ " to A. A. Mellier, same place.
- ⁶ " of one-half to R. Snyder, same place.
- ⁷ " of one-half to A. C. Buell, same place.
- ⁸ " of one-half to R. D. Cain and T. Taubert, same place.
- ⁹ " of one-half to H. Warren, same place.
- ¹⁰ " to T. S. King, same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.

HOW MUCH?

MR. MUGG, of Mugg, Pitcher & Co., tells the story of being called to a debtor in the country, who had been in honest business for forty years and at last given out.

"Well, Mr. Creambowl," said Mr. Mugg, "what can we do for you? Very bad fix?"

"So so, Mr. Mugg."

"What can you pay—seventy-five?"

"No, not so much."

"Well, how's fifty?"

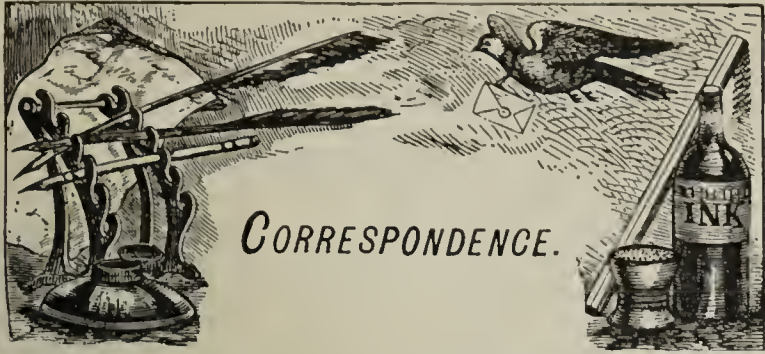
"I think not."

"Thirty-three, then? We want to be fair, you know, with a customer of so long standing."

"Well, I don't know exactly," said the debtor. "By the way, Mr. Mugg, about how much are they paying on the dollar now in Boston?"—*Hartford Post.*

EXPORTS FOR YEAR ENDING JUNE 30, 1883.

THE annual report of the Treasury Department gives the following as the total exports in special lines, as follows: Carriage, carts, etc., \$1,607,502; saddlery and harness, \$209,907; varnish, 97,030 gallons. The exports of saddlery and harness alone from England, for the year ending Jan. 1, 1883, was about \$2,167,550.



POSTAL-CARD ANSWERS TO CORRESPONDENTS.

To Joseph Neely & Son, Paris, Ky.: Both Jacob Sebastian, of 217 E. 43d-st., New-York, and the Abbot-Downing Co., of South Fifth Avenue, this city, make band and excursion wagons such as you allude to.

To R. W. Forbes & Son, New-York City: The manufacturer of Coggin's patent adjustable buggy tops is not known to us. As he does not advertise in the trade journals he is probably a manufacturer for merely local trade.

To P. K., New-York City: The Technical School for Carriage Draftsmen and Mechanics is located at No. 214 E. 34th-st., in this city, where you can obtain the particulars you require from Mr. John D. Gribbon, the instructor-in-chief.

To D. T. S., Philadelphia: We think you might profitably look into the claims of the Archibald wheel, made at Lawrence, Mass. It has a substantial metal hub, and claims to be specially adapted for any heavy work such as you allude to.

To Wm. H. Root, Laramie, Wyoming: The Abbot-Downing Co., of Concord, N. H., hold an unrivalled position as makers of the "old-style leather thoroughbrace wagons for mountain use," which you speak of. We know of no other makers of this special line of work.

To "Old Pupil," Columbus, O.: Yes, the committee is preparing to open the Trade School in this city early in October, and the Corresponding Classes will be continued as before. For particulars as to date and courses of instruction, write to Prof. Gribbon, at same address as last season.

To Apprentice, Toronto, Ont.: Yes, it has been decided that Canadian apprentices and journeymen are eligible to membership in the Corresponding Classes of the Technical School for Carriage Draftsmen and Mechanics, in this city. The terms are the same as to their cousins on this side the line. For circulars and full particulars, address the instructor-in-chief, Mr. John D. Gribbon, No. 214 E. 34th-st., New-York.

To D. P., Cincinnati, O.: A trade-mark which designates an article as made at a particular establishment passes with a transfer of the business, although no particular mention of the trade-mark is made in the agreements as to the purchase of the property. So held by the United States Circuit Court for the Southern District of New-York in the recently-decided case of *The Atlantic Milling Company vs. Robinson*.

To T. D., Indianapolis, Ind.: A trade-mark may be bought and sold in connection with the article with which it is associated, in the same way as other property. It constitutes a part of partnership assets, and is properly sold with the firm property:—*Morgan vs. Rogers*, decided by the United States Circuit Court for the District of Rhode Island. The Court held that a trade-mark being an asset, there is no reason why it should not pass under the term assets in an instrument which conveys the entire partnership property.

To T., St. Louis, Mo.: Where a patented article is put upon the market without being marked "patented," as required by section 4,900 of the United States Revised Statutes, a person infringing the patent is liable only for the infringement made after receiving actual notice of the patent. So held by the United States Circuit Court for the District of California in the case of *Allen vs. Deacon*, decided on July 28th and reported in the *Chicago Legal News*.

TIRE-HEATING FURNACE.

EDITOR OF THE HUB—DEAR SIR: I have just received yours of the 29th ult. Please accept my best thanks for the trouble you took, and the expense you must have been at, in sending me sketch and particulars for building a tire-heating furnace. I have made one, and you will be pleased to know that it works well. With it we have put on sixty tires within three hours. I made a little change from your plan in building it, that is, by carrying the flame to the front of the furnace before ascending the stalk. This retains considerable heat in the furnace that would otherwise be lost. It needs building a little higher to get this flue along the top of the furnace before going into the stalk. ALEXANDER NAUGHTY.

DINGWALL, SCOTLAND.

A PAIR OF WHEELS WHICH RAN 38,000 MILES.

EDITOR OF THE HUB—DEAR SIR: I have thought the following statement might perhaps be of some interest to you, and also to the readers of *The Hub*.

In June, 1879, I made a pair of wheels, and put them under the gig of the medical man of the district. They were 4 ft. 4 in. high, with elm hubs, English oak spokes, hickory rims 2×2 in., steel tire $1\frac{1}{2} \times \frac{1}{2}$ in. In October, 1883, they were taken from under the vehicle. The only defects were that the rims at the spokes were in some places split somewhat, and the steel tire was worn hard, having been once tightened during the time. The wheels had thus run for four years and three months, and had constantly run over the worst roads in the district, but all hard roads. I reckon them to have run 360 days in the year, and 25 miles per day, though they often ran 30 miles. The distance thus performed would be upward of thirty-eight thousand (38,000) miles, and not a single spoke was damaged, but all remained in, and a rim of ordinary ash fellies was put on.

If you judge the above of any interest, I place it at your disposal.

SHAWBURY, ENG.

JOHN POWELL.

TELEGRAPHIC CORRESPONDENCE.

INQUIRY.

Dated TORONTO, ONT., July 31st, 1884.

To The Hub, 323 Pearl-st., New-York:

Finishing finest carriage show-rooms in Canada for fine work. Wire, at our expense, colors you recommend for walls and ceilings, to show off goods to best advantage.

CHARLES BROWN & CO.

ANSWER.

Dated NEW-YORK, July 31, 1884.

To CHARLES BROWN & Co., Toronto, Ontario:

Georgia pine, oiled and shellaced, or warm drabs, finished plain.

THE HUB.

The above telegraphic correspondence has since been supplemented by a report of the results of our friends' endeavor to secure a suitable finish for their new repository. They write with evident satisfaction as follows:

TORONTO, CANADA, August 26, 1884.

EDITOR OF THE HUB—DEAR SIR: We are under many obligations to you for your very prompt answer to our telegram and also for your letter of July 3rd, for which please accept our thanks.

We followed out your instructions to the letter, using a warm drab color, plain, and we are more than pleased with the result. We finished one floor first, and were so well pleased that we finished the second one the same, and we think we have now one of the cleanest and neatest carriage repositories in Canada, and to you we give credit for the same. We shall be happy to reciprocate your kindness.

Yours truly,

CHARLES BROWN & CO.

NOTE.—We don't know that we could really add anything to the above if we were to devote the rest of this column to the subject. We will merely add that the former fashion of elaborately decorating carriage show-rooms has very properly been abandoned, for it was found that it resulted in casting reflections upon the varnished surfaces, which more or less injured their effect; and a plain and unobtrusive finish is now the rule. Light-colored woods, varnished in the natural color, or oiled and shellaced, are to be recommended whenever the finish is smooth; while in case of rough woodwork or plastered walls, these may be painted in warm drabs. The finish of Messrs. Healey, Williams & Co.'s new ware-room, described in our September number, page 416, merits the attention of all interested in this subject.

PROBLEM DEPARTMENT.

[This new department has been opened in compliance with the request of a valued contributor. Correspondence is requested.—EDITOR.]

A PROBLEM FOR THE BODY-MAKERS.

I WOULD like to inquire, through the medium of *The Hub's* "Problem Column," as to what is the general practice in the different shops in framing and facing the front standing-pillar on a heavy job. I find that some make the door face of the pillar straight, and bevel it to fit the shut bevel of the door and the contraction, if any, thereby making the door narrower at the bottom than at the top; while others frame so as to make the door the same width at the bottom as at the top, making the face of the standing-pillar rounding, and the lock-pillar hollowing. I should like to hear from the body-makers on this subject. ANON.

THE PROBLEM OF A LEVEL TIRE.

EDITOR OF THE HUB—DEAR SIR: For information, I desire to ask of you, or some of your contributors, the following question: Is it correct to set an axle-arm dipping enough to throw a wheel that has a half-inch

dish, under enough to obtain a plumb spoke on the under side of the wheel, when the vehicle is loaded, thus giving the wheel more or less outward swing at the top?

If the tire is on square, or the face is at right angles with the face of the wheel, and the wheel leans out, how do so many writers make the tire set level on the floor? I never could. INQUIRER.

WHO MADE THE FIRST BENT RIM?

EDITOR OF THE HUB—SIR: I claim I was the first one who made bent rims. The first ones were put on a vehicle for Nathan S. Thrupp, and were billed May 29th, 1835. The rims were bent all in one piece, and joined. I can to-day show two sets of carriage wheels I built for Peter M. Mower, July 10th, 1840, wherein I put rims bent all in one piece, $1\frac{1}{4}$ in. width. Those wheels are still all in good order, and the rims are as good to-day as they were at the time when they were put on. I am now eighty-three years old, and I have been in the carriage business most of my life.

JAMES HANSEN.

Box 179, SAUGERTIES, N. Y.

NOTE.—We have no reason to doubt the justice of Mr. Hansen's claim. If there are any other claimants to the honor, let them speak up, and name the facts on which they base their rival claims!

WHO WAS TOMMY ONSLOW?

10 LOFTUS ROAD, UXBRIDGE ROAD, SHEPHERD'S BUSH,
LONDON, ENG., July, 10.

EDITOR OF THE HUB—DEAR SIR: I have just been reading your June issue, and notice on page 200 the "Quotations relative to Vehicles." You will forgive me, I know, for pointing out to you that the one about Tommy Onslow is not quite correctly quoted, nor is it quite complete. If you will kindly refer to Mr. Thrupp's "History of Coaches," you will find not only the quotation, but also who Tommy Onslow was; and will find, I think, that it was not from an old English ballad. Yours very truly, ROBERT BURGESS.

NOTE.—Our correspondent will please accept our thanks for the hint. We quote from pages 73 and 74 of the work referred to: "One [of these dangerous machines] was called the 'perch-high Phaeton.' It was shaped like a curricule, and had a leather hood. The center of the body was hung exactly over the front axletree; the bottom of the body was 5 ft. from the ground; the front wheels were 4 ft. high, and the hind wheels 5 ft. 8 in. The hind wheels were far behind, as we see them in a horse-dealer's skeleton break. There was a large platform board over the hind axletree, for servants or luggage. On such a carriage George IV, when Prince of Wales, used to drive to the race-course or round Hyde Park. It was in such a carriage that the Hon. Col. Onslow, generally called 'Tommy Onslow,' performed his feats of driving:

'What can Tommy Onslow do?
He can drive a chaise and two!
What can Tommy Onslow more?
Oh! he drives a chaise and four!'"

CRITICS' CORNER.

[In opening this new department of our magazine, and requesting contributions, the Editor begs to remind correspondents that *criticism* means "the art of judging with propriety of the beauties and imperfections of a production." No mere fault-finder need apply.]

ARE POOR ROADS GOOD FRIENDS?

"THE best friends to carriage and wagon-makers are poor roads; but so far as wearing, tearing and destroying are concerned, Chicago streets beat them all. Vehicles are perishable, and while the builders are resting, the vehicles are perishing."—*Western Carriage, Wagon and Materials Journal*, Chicago, July 1st.

NOTE.—We imagine our Chicago contemporary was "funning" when he made the above statement; but, all the same, we wish he hadn't made it, for it is not founded on fact. Experience proves conclusively that *increased facilities for travel beget increased travel*; and it is the duty of every editor of a carriage trade journal to utilize every opportunity to encourage the extension and improvement of roads, driveways and public parks. It is sophistry to argue that poor roads are good friends to the carriage-maker because they help to destroy his customers' vehicles and to create a demand for new ones. Let them be but poor enough, and the demand will cease te-totally. But, on the other hand, let them be improved fifty per cent., and it will be found that, not only will the demand for pleasure vehicles increase something in the same ratio, but the quality, variety and price will also increase. The carriage-maker can have few better friends than good roads,—and don't you forget it!

A "NEW KINGBOLT" WHICH IS NOT NEW.

Broadway, 47th and 48th-sts., NEW-YORK, Sept. 2, 1884.

EDITOR OF THE HUB—DEAR SIR: On page 404 of your September number appears a letter from Messrs. Simmons & Hooper, coach-builders, of Liverpool, Eng., in which they present a sketch of a kingbolt which they claim as original. On page 87 of *The Hub* for June, 1873, appears a more detailed illustration and description of the same kingbolt, introduced as a new invention, secured by letters patent, by an American in New-York. The number of the said patent is

136,255. The date of its issue Feb. 25th, 1873, and the inventor and patentee J. L. H. Mosier.

This invention dates back to 1871; and, from the time of its invention to this day, it has been used on every platform vehicle built by Brewster & Co., of Broome-street, New-York. Many of their carriages on which it was applied have been sent to various parts of England and Continental Europe; and each vehicle (excepting the Mail Coach) sent by them to the last Paris Exhibition, was furnished with one; and models in part and in whole were also on exhibition. The same were also exhibited at the Centennial Exhibition in Philadelphia. A number of smiths who formerly worked with Brewster & Co. are at present employed in England and other parts of Europe, who have either made, or assisted in making, such kingbolts on this side of the Atlantic; but with the exception of the late house of James Gray & Co., who used it under a license for about three years, no other American house than Brewster & Co., to whom I assigned the right, have had a license to make or use them.

I do not desire to rob our British cousins of anything which belongs to them, including the washer of which they speak so highly; but when their liberality extends to the giving away of one of my patented inventions, I assuredly must object; and I hereby warn all persons in Uncle Sam's domains who are disposed to accept the liberal offer made by our esteemed English cousins, that by so doing they will infringe upon my rights, and that I shall feel compelled to legally restrain them.

My position before the carriage trade has been that of a patron and benefactor, for, of the many and varied improvements which I have perfected for the carriage trade, the majority have been freely given to the trade. Very few have been secured by letters patent, but those few I shall defend to my utmost. Simple justice consequently demands at your hands a publication of this explanatory letter, to the end that I may be justified. With your correspondents I seek no controversy. They have perhaps acted unwittingly.

Very truly yours,

J. L. H. MOSIER.

ANSWER.—We have carefully compared the two illustrations and descriptions above referred to; and, with the exception of the "spiral-spring washer" alluded to by Messrs. Simmons & Hooper, they seem identical in construction and principle. We therefore hasten to emphasize the warning addressed by the inventor to his American friends.

As to Messrs. Simmons & Hooper's connection with the matter, they require no defense, for it is obvious that no house of their eminent standing would write a courteous letter to an American trade journal, over their full name and address, descriptive of a mechanical appliance used by them and represented to be unpatented, if they had any suspicion of its having been originated and patented by an American member of the carriage trade.

HOW NOT TO DO IT.

OUR contemporary, the *Carriage Monthly*, evidently overcome by the unusual heat of the late summer, has allowed itself, in its September issue, to give the following exhibition of irritability. Here is what it says:

The Hub's effort to forestall and manipulate the election of officers of the C. B. N. A., in the interest of what it, in its conceit, supposed to be a ring, whose setting was its own precious self, has, as was predicted by the other journals, been not only a fiasco and a blunder, but worse than a third-class abortion. "So soon that it is done for (like Sir Hudibras we wonder) what it was begun for."

What *The Hub* mistook for a ring proved to be a number of gentlemen who had worked together earnestly for many years to create the great organization, and, having accomplished their end, neither desire or propose to own it or run it, and are rejoiced to enlarge it in every direction, and favor the largest liberality in its government and general distribution of favors and honors.

We would advise the editor of *The Hub* to seek among smaller men for rings.—*Carriage Monthly* for September.

NOTE.—The above so aptly illustrates a growing class of so-called "criticisms" now popular in American journalism, particularly in relation to political questions, that we propose to briefly point out its several weaknesses.

In the first place, this sort of "criticism" always avoids any statement of fact which might be used by the party attacked as a handle of defense. Please notice that the claims of "fiasco," "blunder" and "third-class abortion," are unsupported by any shadow of proof.

Secondly, such "criticisms" are frequently premature, as in this case, where it ante-dated the publication of our concluding article on the subject, which only appeared in our September number (pages 409, 410 and 411), and then contained the pith of the whole matter. Under these circumstances the above reads like a review of a play written before it has been played, or of a serial story whose first half only has appeared in print.

Thirdly, it often credits to the work criticized qualities so foreign to the facts of the case, that the individual attacked would render himself as ridiculous as his critic if he attempted to defend himself by a response. Have we ever raised any issue against "a ring" or "rings" seeking to control the affairs of the Carriage Builders' National Association? Never! It was the *Carriage Monthly* itself which implied as much, and it was *The Hub* which disproved the implication.

Our object in mentioning the above warm-weather editorial by our Philadelphia contemporary is *not* to combat its utterances, which merely

amuse us, but to caution our readers against forwarding to our "Critics' Corner" criticisms which resemble the above in either of the characteristic features we have pointed out. Please bear in mind our frequent injunction that "criticism means the art of judging with propriety of the beauties and imperfections of a production;" and that to fulfill these conditions, it must contain a statement of the facts, it must evince adequate knowledge of such facts, and the facts must be pertinent to the production criticised. All so-called "criticisms" of the objectionable class above commented upon will, upon receipt, be promptly deposited in our waste-basket, as unworthy of notice.

EXPOSURE OF A POPULAR FALLACY.

RESPONSE TO LETTER BY W., ON PAGE 344.

IT is a long time since we have received a communication from Cap'n Si. Jones, whose letters used to form such an attractive feature of our "Office Department," but our New-Haven correspondent W. has happily drawn forth from him the following, which we feel sure will be appreciated by employers and workmen alike.

* * *

EDITOR OF THE HUB—DEAR SIR: Your very good August number has reached me on the Jersey shore, where I am recruiting my strength for the approaching raid on St. Louis, in October, and I had promised my son Jim that I would not sling any ink while away, but would just "lay off" on the beach, and take in the salt air that comes loaded down with life and strength for the city folks who are lucky enough to get away from home; but when I read in your "Critics' Corner" the letter from W., of New-Haven, entitled "Exposure of a Popular Fallacy" (page 344), I could not resist the desire to "jaw back."

Mr. W. may be right in the main upon the subject he discusses, and I think he is; but he has made one assertion, at least, about which he and I must differ. I don't believe in his claim that "employers cannot do otherwise than to hire men at the lowest price for which they can be obtained, and sell their products at the highest price." That is a basis upon which I do not believe any permanently successful manufacturing business can be built up. It is, in my opinion, the rock upon which a heap of carriage-makers have split, and this applies also to other employers of skilled labor.

Now, there are times and circumstances when an employer has it in his power to "screw" his men down below the necessities of the case, and when the men submit simply because resistance is impossible; but does any man who is familiar with the character and intelligence of the average skilled workman, believe that in this submission the employer is a permanent gainer? If he took an undue advantage of his men because the power was accidentally in his hands, the men will surely remember it, and from that time on there will begin and grow that antagonism which unfortunately so often exists between these two interests throughout the world; and this antagonism will lead to other and more serious results. Men who are once led to believe that the boss is a "screw" and an unjust man, are pretty sure to grow careless in their work and to do less of it. They take no interest in the good name and fame of such an employer, and consequently become indifferent whether he is prosperous or otherwise. I shall not in this letter attempt to discuss the right and wrong of this course, but will content myself with the assertion that the evils I have pointed out are the natural result of all attempts on the part of employers to take advantage of their men when it is obvious that they do so only because circumstances have given them the power. I claim that no carriage-builder, aiming to retain a good reputation for the quality of his work, can succeed without the goodwill of his men, and he is wise if he pays "a fair day's wages for a fair day's work," governed always by his ability to pay it. I agree with W. that no employer conducts his business as a benevolent institution, and I also agree with him that the primary object the employer has is to make money; but, in my judgment, he needs willing and satisfied men to aid him to accomplish this.

It is the above sentiment expressed in W.'s letter which I desire to take exception to, because I have so often seen it lead to the establishment of organizations to resist it, and to the carrying out of other similar ideas on the part of employés, until such resistance has degenerated into arts on the part of the workmen which exceeded those of the employers, in injustice, and which had to be submitted to by the just and unjust employer alike. I don't believe that W. conducts *his* business wholly on the plan to which I object, because he is evidently a thinker, and I cannot believe if, in some exceptionally dull period of trade, his own factory might be full of orders, that he would cut down the wages of his men simply because he knew they could not obtain employment elsewhere; and I am sure that, under such circumstances, the majority of his men would appreciate the full work and full wages he would give them, and labor with a spirit that would result in profit to

him, to say nothing of the goodwill toward him which would continue to influence their conduct when, in better times, the general condition of trade had revived, and when less liberal employers were unable to procure skilled workmen. Of course, he would be liable to find some men of his force who might, in return for his liberality, treat him shabbily, because there are mean workmen as well as mean employers, but he should not allow this to discourage him.

It is a singular fact, let me add here, that the average employer will hasten to follow the lead of his neighbors who cut down wages in dull times, when he would scorn to join the same neighbor in a movement to raise wages; and he would probably give as a reason that he runs his business without the advice or influence of his neighbors in the trade.

I am not lying awake nights, Mr. Editor, to catch a first sight of the millennium, because I don't expect it to appear in my day, but I hope I have a right to expect that, some day, there will be a better understanding between the office and workshop, that the boss will not always believe it wise to hire his men at the lowest price for which they can be obtained, and that the men will some day recognize and reciprocate acts of justice on his part.

In conclusion, I quite agree with W. in his estimate of the net profits of the carriage-builder. In the history of the carriage trade there have been but few large fortunes made, and the majority of these have been the result of fortunate investments, of the moderate sums made in the business, in real estate and other outside matters, or the possession on the part of the employer of extraordinary ability in the management of his business. I am satisfied that the vast majority of carriage-builders *die poor*. The competition is too great to permit handsome profits except in rare instances, and this is largely due to the fact that so many workmen have the mistaken belief that the bosses make great profits, whereby they are led to enter into the business with their hard-earned savings, but without business training or the ability to manage, and thus learn from experience that the bosses' lot is not altogether a happy one.

Yours truly,

SI. JONES.

DINNER-HOUR.

*"A little nonsense, now and then,
Is relished by the wisest men."*

GWINE TO TOWN.

AIR:—"Come and Kiss Me."

I hitched up in the mornin'
For to go to town;
I hadn't got more 'n a mile 'n a half
When my ole wagon broke down.
I left her thar, right whar she broke,
And walked the rest o' the way.
When I hitch on to that ole ark again,
Its goin' to be a mighty cold day!

CHORUS:

*When the sun rise in the mornin'
We's all a goin' to town;
And we'll ride in the Jackson Wagon,
For we know she won't break down.*

We bought a Jackson Wagon,
You can bet that she's the boss;
It runs so mighty easy,
We can draw it with one ole hoss;
And if you want to have some fun,
And take a good ole ride,
Just buy a Jackson Wagon
'Long with the whipple guide.

CHORUS.

ANOTHER TANDEM DRAWING BY GRAY-PARKER.

AS promised in our last number, page 417, we have the pleasure of embellishing our "Dinner-Hour Department" this month with an unusually attractive drawing by Mr. Gray-Parker, entitled "Podgers invites Codgers to a Tandem Drive." See illustration on next page. It tells its own story with delightful humor and force.

THOSE CAUSTIC TYPES.

Types often take liberties with authors' manuscripts, but the chief wonder is that they prove as kindly as they do, when the usual nature of authors' handwriting is considered. A first-proof of a report recently horrified our editor by the statement: "Your committee were instructed to collect full information on the subject, and to report the result of our *iniquities*." The types, by a slight variation, had developed the last from the word "*inquiries*."

NOW THEN SAYE PODGERS. THAT'S MI 'DEA OF A WALL APPOINTED TANDEM YOU SEE THE LEADER HAS A TOTALLY DIFFERENT CHARACTER FROM THAT OF THE WHEELER DONTCHERKNOW!

WHEELER - TURDY, MASSIVE, STEADY - GOING DONTCHERKNOW?



LEADER IS A THOROUGHbred HUNTER



THEY HAVE DECIDED TO GO AND SEE THE HOUNDS THROW OFF. - HULLOA! THERE, YE RASCAL! WHAT ARE YE UP TO? - YOU SEE HE'S EXCITED, BLOOD WILL TELL ME, BOY, BLOOD WILL TELL



WHERE IT IS PROVEN THAT BLOOD DOES TELL UNDOUBTEDLY TOO MUCH



BLOOD HAS TOLD!

GRAY-PARKER



YOU ARE INVITED TO THE CONVENTION!

St. Louis, Mo., September 16, 1884.

To every Carriage Builder :

DEAR SIR—The Twelfth Annual Convention of the Carriage Builders' National Association will be held in this city [St. Louis], October 15th and 16th next. You are cordially invited to be present!

There are upwards of five hundred members of this Association at the present time. The object of this Association is to establish a friendly intercourse among Carriage Builders; to express their different views and methods of Carriage Building, and to become acquainted with each other,—thereby being mutually benefited.

As Carriage Builders are closely confined to their business, this occasion offers them a chance to take a vacation, and to see many new improvements in the art of carriage-making, as there will be a large number of new devices and inventions of carriage materials and parts of carriages exhibited, which will be of great benefit to the carriage-makers, and give them new ideas and fresh energy, and thereby enable them to more thoroughly prosecute their business.

The Southern Hotel has been engaged as headquarters for the Committees and for the Banquet of the Association. Mercantile Library Hall (a large hall) has been engaged for the meetings and for the display of the different goods which will be exhibited.

Those intending to be present should notify Frank H. Hooker, Secretary, New-Haven, Conn., or Henry Timken, Chairman Local Committee, St. Louis, Mo., without delay, so that arrangements can be made for the number to be seated at the banquet.

Those wishing to participate in the proceedings and at the banquet must become members of the Association, as provided by the by-laws, as follows: "Active Members shall be persons engaged in the manufacture of carriages for pleasure or freight, and shall pay to the Treasurer an initiation fee of five (5) dollars and five (5) dollars annual dues. Associate Honorary Members may be elected from any trade or profession upon the payment of an initiation fee of ten (10) dollars and five (5) dollars a year annual dues, which shall entitle them to all the privileges of the Association except a vote, including the annual banquet."

It will pay you well to be present; for, aside from the instructive and interesting features which this Association offers, the great St. Louis Exposition will still be in progress, and will alone pay you for the trip. Come! and we will make it pleasant for you here.

[Local Committee officially representing the Carriage Builders' National Association:]

HENRY TIMKEN, St. Louis.
FRANK L. WRIGHT, St. Louis.
WM. T. HAYDOCK, St. Louis.

NEW-YORK CITY.

PERSONAL.—Our Editor has been spending his vacation at East Hampton, Long Island, N. Y.

"WORKINGMEN'S CLUBS AND COFFEE-HOUSES," a short article by Charles Barnard in the September *Century*, is well worth reading.

PERSONAL.—On Sept. 10th, we had the pleasure of a visit from Mr. G. F. Adams, foreman painter with G. W. Bradley, at West Meriden, Conn.

THE CARRIAGE-MAKERS' FISHING CLUB, of this city, have voted to dispense with their usual clambake this year, in consequence of the dullness of trade.

THE NEW-YORK GUILD OF CARRIAGE-MAKERS is now working under its new laws. The meeting nights have been changed to the second Monday of each month. It is in a properous condition.

PERSONAL.—Mr. Frank Roscoe, a carriage-smith finisher, of New-York City, is a member of the State Committee of the Greenback Party, and one of the prominent representatives of that political organization.

NEW SLEIGH PLUMES.—Mr. Otto Wagner, 272 Sixth-ave., New-York, has this season introduced some striking new colors for sleigh plumes. Mr. Wagner's office has become the acknowledged headquarters in this special line of work.

PERSONAL.—Mr. Ludwig Lohner, representing Messrs. Jacob Lohner & Co., the world-famed coach-builders of Vienna, Austria, made us a call last month, and is now in the West. We greatly regret that Mr. Lohner is not to be present at the convention in St. Louis.

THE BREWSTER & CO. MUTUAL BENEFIT ASSOCIATION, Broadway and 47th-street, New-York, paid out, during the twelve months closing July 1, 1884, for benefits, \$2,152.88, and in cases of deaths, \$235.00; total, \$2,387.88. We wish its worthy work might be imitated in many other leading carriage factories.

OBITUARY.—August Schramm, foreman painter with Messrs. Nuffer & Lippe, of this city, was buried on Sunday, Sept. 13th. He was 46 years of age. Mr. Schramm was a native of Germany, and was a first-class painter, and much respected by his comrades. He was a member of the German Coach-Makers' Association.

THE THREE "GIANT MONTHLIES": *The Century*, *Harpers' Monthly* and *Atlantic Monthly*, have all come out strong in their October issues. The frontispiece in *The Century* is a portrait of Austin Dobson, which will be welcomed by his many numerous American friends. The leader in *Harpers'* is Horace E. Scudder's illustrated article on "The Home of Hans Christian Andersen."

OPENING OF THE TECHNICAL SCHOOL IN NEW-YORK.—The Classes in Drafting and Construction, including the regular Evening and Corresponding Classes, carried on under the auspices of the Carriage-Builders' National Association, at No. 214 East 34th-street, New-York, open for their fifth season on Wednesday, Oct. 1st, and will continue in session from that date until May 1st, next, or about seven months. For prospectus, and full information regarding terms, courses of instruction, etc., call upon or write to Prof. John D. Gribbon, at the address above named.

LAZIER IN FURTHER TROUBLE.—The following telegram, received by us on Sept. 16th, implies that the traveling swindler Lazier, now serving sentence at the Kingston Penitentiary, Canada, is in further trouble: "Kingston, Ont., Sept. 16, 1884. Geo. W. W. Houghton, 323 Pearl-st., New-York: Lazier sentenced three years and one month for forgery. L. N. Morrison." We have applied for official intelligence of the case, a full report of which may be expected in our next number.

EX-PRESIDENT BRITTON'S TESTIMONY on "The Condition of American Carriage Workmen," as published by us in pamphlet form, has been deemed of such interest to the English trade that *The Stable*, of London, has devoted over three pages in its September issue, to a reprint of its more noteworthy passages. We agree with Senator Blair in approving the widest possible distribution of Mr. Britton's testimony, for it is unquestionably a trade tract of unusual value.

GUM-CLOTH, ETC., WANTED.—Messrs. Wm. Shackelford & Co., of Saluda, Va., ask: "You will please do us the kindness to inform us where gum-cloth or rubber cloth is made, and also drill, duck, and enameled leather. We want to buy such goods from the manufacturer at first cost, and buy largely at once, instead of in small quantities." ANSWER.—Joy & Co., Newark, N. J.; Fairfield Rubber Co., Fairfield, Ct., and the Evans Artificial Leather Co., Boston, Mass., are headquarters.

"REFRESHING."—"How refreshing, during these dull times, to read *The Hub's* reports of improved condition of trade."—September *Carriage Monthly*. Precisely! and how depressing to see the *Carriage Monthly's* position stultified by such pseudo-philosophical essays on everything in general and nothing in particular, as their editorial "The Trade Mercury is lower now than at any time for years" (September number, page 163), which they solemnly present as a substitute for our "How's Trade" reports.

OBITUARY.—John Becker, of this city, carriage woodworker, and at one time the best and quickest of his kind in New-York, was buried on the 11th inst. He was a native of Zwei Brucken, Baden. He served his apprenticeship with Mr. A. Moore, in East Broadway, and was afterward engaged in the repair shop of the City Fire Department for many years. He was 53 years old, and well liked by all who knew him. He leaves a widow and family in fair circumstances.

PERSONAL.—Prof. John D. Gribbon, Principal of the Technical School, has spent his summer very pleasantly in traveling. He left New-York City about the middle of July, and visited Rochester, Buffalo, Niagara Falls, Toronto, Montreal, Quebec, Newport, N. H., Boston and Nantucket; and after a few days' sojourn in New-York, he made an extended excursion through the Adirondacks, returning home on Sept. 1st. He is now busily engaged on work connected with the school, which opens its fall season on Oct. 1st.

OBITUARY.—Died suddenly, of heart disease, at his home in New-York City, on Thursday, Sept. 18th, Jacob Sebastian, the prominent and highly respected wagon-builder, aged 60 years. Mr. Sebastian was born in the city of Drysen, Bavaria, Germany, on June 15, 1824. When arrived at the proper age he served a regular apprenticeship in the woodworking branch of wagon building in the same city. At the age of 26, he emigrated to this country, and worked as a journeyman in the wagon business, until the year 1853, when he associated with Mr. Lewis Roth, and started a wagon shop. This partnership was dissolved in 1855. Mr. Sebastian then joined with Mr. Peter Lanzer, who kept a wagon shop in Melrose, N. Y., and remained there until July 1, 1857, when he formed a copartnership with Mr. A. Saal and opened a shop on Third-avenue in this city, between 47th and 48th-sts., under the firm name of Sebastian & Saal. He remained in business with Mr. Saal until May 1, 1874, at which date the firm was dissolved; and Mr. Sebastian then rented a large building on 43d-st. near Third-avenue, where he continued on his own account. The business, which had been prosperous before, here increased rapidly, so that it soon became necessary to look for larger quarters, and a new factory was built almost opposite the old one, fitted with all the latest improvements in machinery, which he took possession of early in January of this year. Mr. Sebastian was a congenial man, and a manufacturer of large experience and unusual skill. To his workmen he proved a strict but just employer, and he was held in the highest esteem by all.

* TRADE EMBARRASMENTS.—*Bradstreet's*, during the past thirty days, has reported the following embarrassments on the part of members of the carriage and accessory trades: W. T. Collins, carriage-maker, San Jose, Cal., filed petition insolvency. Renshler Brothers, Cairo, Mich., wagon-makers, failed. Mahler & Thompson, St. Paul, Minn., wholesale carriages, etc., embarrassed. They owe about \$67,000, and \$12,000 of their paper has gone to protest. The bank debts are secured by collateral. Joseph Gazaille, Haverhill (Woodsville), N. H., wheelwright, failed. Liabilities about \$1,000; nominal assets about \$300. S. A. Martine & Co., New-York City, wholesale carriage cloths, [reported last month] schedules liabilities \$169,408; nominal assets \$128,331; actual assets \$60,146. Frederick Fenton & Co., wholesale carriage hardware, Philadelphia, Pa., assigned to Hector T. Fenton. They have been virtually out of business several months settling up their affairs, having offered a compromise of 60 cents last February. M. O'Donovan, carriages and wagons, Whitby, Ont., sold out by creditors under judgments. Charles F. French, blacksmith, Cloverdale, Cal., in insolvency. Booth & Barney, carriage-makers, Peoria, Ill., assigned. Liabilities \$5,000; nominal assets \$10,600. Abner Challies, carriage-manufacturer, Newfield, Me., reported in insolvency. J. Halsted, wagons, Shelby, Mich., assigned. Frank L. Thurber, carriage-maker, Corning, N. Y., assigned. A. T. McDonel, carriage-manufacturer, Fostoria, O., assigned to W. M. Skinner. Springer, Morley & Gause Co., wheels, hubs, etc., Wilmington, Del., called meeting of creditors. Judgments for \$37,715 were entered August 11. Daniel Force, carriage manufacturer, Danville, Ill., confessed judgment. Edwin P. Henderson, carriage manufacturer, North Cambridge, Mass., in insolvency. L. Pfister, carriage-maker, Martinsville, O., assigned to J. D. Owsley. A. E. Benitz, carriages, Pittsburgh, Pa., sheriff's sale advertised. Moor & Trow, carriage-makers, Andover, Mass., filed petition in insolvency; liabilities \$3,160; assets small. William G. Moore, spoke manufacturer, Lambertville, N. J., assigned to Levi Brown; liabilities reported about \$15,000. W. G. Vanstaden & Co., hub, spoke and wagon manufacturers, Strathroy, Ont., stock seized by sheriff. M. A. Roy, carriage-maker, Montreal, Que., assigned.

NEW-YORK STATE.

NEW QUARTERS.—The proprietors of the Baker Dash Works, Syracuse, N. Y., are about to move into a new factory, specially built for their needs.

THE ROCHESTER WHEEL CO., of Rochester, N. Y., after its small fire, is repainting its factory and running as industriously as if wheels were in as large demand as ever.

AN AXLE FOR WAGON-MAKERS.—The Syracuse Tubular Axle Co., of Syracuse, N. Y., will soon be ready to supply wagon-makers with a tubular wrought-iron axle which has many points of excellence, and which we believe will meet with hearty endorsement.

A NEW CATALOGUE.—The Edward Storm Spring Co., Limited, Poughkeepsie, N. Y., have issued a very handsome catalogue, which also contains the handsome announcement that over 70,000 wagons now running are equipped with this popular spring. The style of springs, gears and bodies made and sold by the company are fully and attractively set forth.

NEW-YORK MAKERS OF CUTTERS AND SLEIGHS.—Mr. J. Milton Sweeney, of Zion, Center Co., N. Y., asks: "Will you oblige a subscriber by sending me the names and addresses of several reliable cutter factories in New-York State?" ANSWER: R. N. Bingham & Co., Rome; Gage, Hitchcock & Co., Homer; Hitchcock Mfg. Co., Cortland; and Birdsall & Muckle, Whitney's Point,—all New-York State.

A HANDY DRILL.—J. W. Manneer, of Rochester, N. Y., whose small drill has met with such a large demand, has now perfected and is putting on the market a new self-feed drill, called "the XXX," which is excellently constructed, simple and strong, and costs \$28. It is a post drill; and if orders are a test of popularity and merit, this is the finest drill in the market, for he is shipping them with unusual rapidity for these times.

NEW-ENGLAND.

MARTIN & O'NEIL, of Waterbury, Conn., write thus cheerfully under date of Sept. 2d: "Trade is good with us at present, and is getting better all the time. We have painted and repaired 374 jobs since Jan. 1st last, and we think that's doing pretty well for a young firm, two years in operation."

A HANDY TOOL.—The Wiley & Russell Mfg. Co., of Greenfield, Mass., have sent us their new catalogue, in which we find, on page 19, a description of a "lightning" countersink and drill combined, which strikes us as being a particularly handy labor-saving tool. The hole is drilled and countersunk at one and the same operation, and the countersinking cutter is adjustable and of sufficient length for grinding and wear. The tool is both well made and inexpensive.

OBITUARY.—Died, on Aug. 22d, at his home in Boston, Mass., James Hall, the veteran carriage-builder, aged 80 years and 7 months. Mr. Hall was born at Yarmouth, Mass., on Feb. 15th, 1804, and removed to Boston in 1822, when he entered the employ of Walter Frost, then leader of the carriage trade in that city, whose factory on Tremont-st. occupied the present site of the Boston Museum. He was apprenticed as a carriage smith; and after working for Mr. Frost for about 10 years, he started on his own account and has continued in the same business ever since, being at the time of his death the oldest active carriage-builder in this country. In his day he was considered one of the finest mechanics in the trade, and he ironed many C-spring coaches. He took pride in relating that he made with his own hands, while he worked for Walter Frost, the first set of three-bolted mail axles ever turned out in this country. These axles were applied to a coach which Mr. Frost built for Gardner Green, of Boston, a wealthy citizen who owned all the property from Pemberton-sq. to Beacon-st. on Tremont-st. For many years past, his son, James Hall, Jr., has been associated with him, under the firm name of Jas. Hall & Son; and the business will be continued as before under the same title. Mr. Hall was a member of the Carriage-Builders' National Association, and was much respected in the trade as a manufacturer of marked ability, and an upright and amiable man. At a meeting of his fellow-members of the trade who attended his funeral, the following resolutions were adopted:

WHEREAS, in the death of James Hall, we, as the carriage-builders of Boston, have lost an honored member of our fraternity; and

WHEREAS, in his death we are brought face to face with the certainty that a like end awaits each and all of us; therefore

Resolved, That we, his former associates, desire to tender our meed of respect to one who has, through a long and active life, maintained the highest position in manliness and honorable dealing, and who leaves behind him a name worthy of emulation.

Resolved, That the lesson of a life so worthy, so well ordered and prolonged, should not be lost upon us.

Resolved, That we tender to the family of the deceased our sympathy, and wish to express to them our sense of the great loss they have sustained.

[Signed by] Wm. P. Sargent & Co., Chauncey Thomas & Co., Francis Sargent & Co., D. P. Nichols & Co., Kimball Bros., Emond & Quinsler, Bradford Perry, and John A. Scott & Son.

MIDDLE STATES.

PICNIC.—Messrs. S. Halsey & Son, patent-leather manufacturers, and Orlando Greacen, manufacturer of coach hardware, Newark, N. J., gave their employes an excursion to Ocean Grove on Friday, Aug. 29th. A special train of cars was chartered, and the money to procure a lunch was provided by the firms.

A CHANGE.—Mr. Anson Searls, of Newark, N. J., manufacturer of whip-sockets and carriage mountings, has disposed of his interest in the business heretofore conducted by him, to his successors, the Searls Manufacturing Co., who will carry on the same, under Mr. Searls's management, with increased facilities. Mr. E. B. Hotchkiss is secretary and treasurer of the new company.

THE LANCASTER COUNTY AGRICULTURAL FAIR, held in Lancaster, Pa., from Sept. 1st to 6th, inclusive, included a fine display of carriages, and premiums were distributed as follows: Edgerly & Co., highest premiums on extension-top phaeton with platform gear; extension-top carriage on three springs, for one or two horses; and light pony phaeton. Norbeck & Miley, highest premiums on light one-man wagon, weighing about 120 lbs.; Brewster top buggy, and Windsor top buggy. Philip Doersom, highest premiums on four-passenger park phaeton, and business wagon.

FIND IT GOOD READING.—President McLearn, of Wilmington, Del., acknowledges as follows the pamphlet containing the reprint of *The Hub's* report of Ex-President Britton's testimony before the Senate Committee on the "Condition of American Carriage Workmen": "The pamphlet containing Mr. Britton's testimony has been received. I am much obliged. It makes good reading. I read it as you published it in *The Hub*, and consider it well worth preserving." Ex-Vice-President Clement Studebaker, of South Bend, Ind., sends an equally kind acknowledgement, saying: "Your card, also the pamphlet giving testimony of Mr. Britton before the Senate Committee, are at hand. Please accept my thanks for the little book. I had read the presentation of Mr. Britton's remarks before the committee, as afforded by the columns of *The Hub*, and am glad to be able to preserve them in the neat shape you have given them in this pamphlet. I attach much value to Mr. Britton's views on the subject which was under discussion before the committee."

DESTRUCTIVE FIRE.—About 2.30 o'clock on the morning of Saturday, Sept. 20th, smoke was observed issuing from the rear of the four-story brick carriage warehouse of Wm. D. Rogers & Co., Nos. 1007, 1009, and 1011 Chestnut-street, Philadelphia. The fire was first seen by some compositors connected with a morning paper, who forced open the doors on the Chestnut-street

front. In the meantime an alarm had been sounded, and, by the time the apparatus of the department reached the scene, all of the carriages on the ground floor, nearly one hundred in number, and valued at \$60,000, had been removed. The front portion of the second floor was used as a ware-room, while the remainder of the building was used as repair shops. It was in one of the latter that the fire originated, and it burned stubbornly for over an hour before it was gotten under control. It is estimated that the loss will aggregate about \$40,000, which is fully covered by insurance.

NEW REPOSITORY.—Messrs. Gregg & Bowe, carriage-builders, of Wilmington, Del., whose present branch house in Philadelphia is located at the northeast corner of Twelfth and Arch-streets, have purchased the properties Nos. 1,707 and 1,709 Filbert-street, and upon this site are about to erect a large carriage factory, which will cover the entire ground, 40 x 117 ft., through to Cuthbert-street, and embrace a five-story and basement building, constructed in the most solid and substantial manner. The first story fronts will be of iron, and the rest brick, laid in black joints, and with marble dressings and brick and wood cornices. The first floor will be used for repairing and supplies, with forges and all necessary machinery, and will also include the store-room and office. The second floor will be the show-room, a feature of which will be a bay window, 16 feet wide, extending from the front, and on a level with the elevated railway. This projection will be used for a show window, its conspicuous position making it especially well adapted to the purpose. A light well, starting from the ceiling of the first story on the east side, will afford light to the center of all the floors in the building. The third and fourth floors will be used as workshops, and the fifth floor for the varnish-room, a dust-tight apartment, and the dark room. Work has already commenced on the building, and it is the expectation of the firm to occupy it before winter sets in.

WESTERN STATES.

THE GREAT FIRE IN CLEVELAND, O., last month, threatened Messrs. Sherwin, Williams & Co.'s color works with destruction, only escaping them by the narrow margin of 12 feet, the flames sweeping around their rear building, and destroying those beyond it.

C. Z. KROH & BRO., of Toledo, O., wholesale manufacturers of carriage tops and carriage trimmings, write thus encouragingly: "We are happy to report that, so far this year, our business has fully doubled that of last year. At present it is a little quiet, but the indications are favorable for a good fall trade with us."

MORE DASHERS.—The Enterprise Mfg. Co., of Chicago, Ill., who began operations about a year ago, have already worked up a good trade in carriage dashers, are now running 4 machines, 2 Elliott's and 2 Singer's, and are able to turn out 100 dashers per day. The future looks particularly promising to this company.

BETTER RATHER THAN WORSE.—Bollenbacher & Sons, proprietors of the Standard Spoke Works, Bloomington, Ind., make the following trade report under date of Sept. 12th. They say: "We find an improvement in our fall trade, over the summer and spring trade; yet we could do considerable more."

PERSONAL.—Mr. Scott Smallwood, of Chicago, Ill., has been spending the summer at his old home in Clarksburg, W. Va. Mr. Smallwood is a practical carriage-smith, of long and varied experience, and will be remembered by readers of *The Hub* as a former correspondent whose contributions attracted much attention.

THE BRYAN CARRIAGE CO., of Bryan, O., build all kinds of light buggies and wagons, but they are at present making quite a specialty of the "Straight Cart," invented by Mr. C. H. Straight, who is a member of the company. This is one of the best carts now on the market, and its merits well deserve investigation. Send for illustrated price-list.

JOHN A. CHOCKELT, carriage-builder, of South-Bend, Ind., makes the following encouraging trade report. He says: "My business this year has been exceedingly good,—in fact, better than last year. I employ 20 men, with four forges, steady work. My work is mostly buggies and carriages, besides a few wagons ordered by local customers."

E. W. DRYDEN & CO., of Chicago, Ill., have lately gone into handling harness, horse-clothing and turf goods, in connection with their carriage business. They say: "Our trade is very good; we are way behind on orders, and the outlook for fall trade is good." They do a heavy repair business, and have just finished and delivered the last of twelve Gurneys.

SULLIVAN & EAGLE, of Peru, Ind., under date of Aug. 16th, report "sales of new work fair, and repairing good." They employ from 10 to 12 men, and 3 forges; and build from 50 to 75 new jobs annually, including both light carriages and platform wagons. They add: "Our county has good crops, and the promise is that farmers will have money before long."

SAND AND MUD BANDS.—In many sections of the country, the bands made by Mr. Willis M. Farr, of Dowagiac, Mich., are almost indispensable. He states that carriages with them attached run from three to five times as far with one oiling, and that the axles wear much longer. We learn that many carriage manufacturers are placing them upon all new work. They can be readily attached to all wheels, new or old.

THE ROYER WHEEL CO., of Cincinnati, O., are not accustomed, during dull times, to sit down and wait for something to turn up. They have been working the trade for all it was worth during the past summer, employing two canvassers, namely: Mr. E. D. Moore in the West, and Mr. H. Jenks in New-England and New-York State east of Buffalo. Mr. Jenks was long connected with the company as a mechanic, and he is a skillful one.

M. P. HENDERSON, carriage-builder, of Stockton, Cal., gives the following account of business in his section. He says: "Trade is pretty quiet with us at present, owing principally to the season being late, and also to the very low prices for wheat, etc. We do not expect, at the most, more than one-half or two-thirds of our usual trade this year." He kindly adds: "We are well pleased with *The Hub*; and, when bound, we find them still more valuable for reference."

ADVERTISEMENTS SET TO MUSIC.—The ingenuity of the Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich., in the way of advertising, seems inexhaustible. Their latest consists of five songs, including "The Jolly Three," and "No Use Waitin' till To-morrow." Portraits of Messrs. E. A. Webster (President), B. A. Webster, W. S. Bash, O. P. Pindell, and A. O. Case, the proprietors of the house, adorn the cover page of this sheet-music, and the songs and choruses reverberate the praises of their Jackson Wagon.

PATENT FOLDING TOPS FOR BUGGIES.—Mr. J. F. Riche, carriage-builder, of Rockville, Ind., who recently removed there from South Eastern, in the same State, writes as follows: "I wish to build some work not found yet in the usual line of snide buggy trade, and will you please inform me where I can secure the legal right to build the patent folding tops for one-seat buggies?" ANSWER: We do not know, unless reference is made to the top made by E. Warren, of Ligonier, Ind. Perhaps some of our readers can give Mr. Riche the desired information.

NO MEDALS THIS YEAR.—The Egan Co., of Cincinnati, O., whose line of wood-working machinery for carriage and wheel-makers, is very extensive, is not represented at the Cincinnati Exposition this year. So many medals for excellence have been secured by the company that it is reported as being said by one of the commissioners that "The company stands out this year to give others a chance." Its showrooms constitute an exposition of themselves in this line, and are worth a visit.

TRADE REPORT FROM LARAMIE, W. T.—Our friend "Ely," of Laramie City, Wyoming Territory, reports as follows under date of Sept. 1st. He says: "The past summer has been the best our wagon and carriage-builders have ever seen. There has been one English break built here, besides a few side-bar wagons and phaetons, and a great many buckboards and four-spring mountain wagons. Our people prefer home-made and hand-made work to any other, and price cuts no figure so long as a customer can have his wants supplied. This is one of the poorest markets on the continent for "James Crow" or snide work, as it will not sell at any price. All workmen here get good wages and prompt pay. Of course the amount of work is limited, and at present the shops are all full-handed, and can give employment to no more. I hope that you will always use nothing but first-class timber in *The Hub*, and that you may never suffer from a loose tire."

FOREIGN.

THE ANNUAL BEAN-FEAST of the employés of Joseph Cockshoot & Co., carriage and harness manufacturers, of Manchester, Eng., took place on Saturday, Aug. 2. The trip was to Liverpool.

FORDER'S NEW CABS.—A London correspondent asks us: "Have you seen Messrs. Forder's new cabs, and how do you like them? They are certainly doing a very large trade here, and, for ease and comfort in riding, their cabs are equal if not superior to any running in our London streets."

HYDE, ARCHER & CO., of 7 Clerkenwell Road and 140 Long Ace, London, Eng., offer the following trade report as gathered from their point of view as manufacturers of coach trimming supplies. They say: "There has certainly been an improvement in all branches of our business within the past six months; but it is still far from what we consider it should be."

FREDERIC SELBY & CO., of Birmingham, Eng., the well-known manufacturers of carriage axles and springs, make the following trade report under date of Aug. 19th. They say: "Our turnover for the last 12 months has considerably exceeded that of any previous year, and we continue extremely busy in every department. Our success at the Amsterdam and Calcutta Exhibitions has brought us a large accession of Continental and Indian business. You will be pleased to hear that we get through a fair quantity of American goods."

TRADE REPORT FROM LONDON, ENG.—Messrs. Hammerton & Miles, of No. 39 Acton-street, London, report as follows under date of Aug. 20th: "Trade at the present time is very quiet, but we expect it so this month, the season being over and the town comparatively empty. Taking the past season as a whole we should call it fair so far as orders are concerned; but money has been most horribly tight. We expect to see here at the end of the year, our mutual friend, Mr. Atwood, of Henry Hooker & Co., of New-Haven, and we hope he will have a prosperous trip to report."

OBITUARY.—Died, on Aug. 6th, J. Barlow, coach ironmonger, of Queen-st., London, aged 55 years. Mr. Barlow was the owner of several patents for improvements in parts of carriages, and was among the earliest to take out a patent for automatic landau-tops. He was a steady advocate for technical education in the coach trade, and was on the committee of St. Mark's Technical College. He was also a member of the Master Coach-Builders', and Operative Coach-Builders' Societies, and the Saddlers' Pension Fund, being treasurer of the last named; and a prominent Freemason and Oddfellow. He visited America two years ago, in company with Mr. W. Simpson (also lately deceased), when we had the pleasure of making his acquaintance, which has since been continued by correspondence. He had been in failing health for some time past, and about seven weeks before his death was seized with angina pectoris, from which he never rallied.

THE HENRY SPRING DID IT.—The *Irvine and Fullerton Times*, speaking of the exhibit of our good friend Mr. Wm. Holmes, of Irvine, Scotland, says: "The carriage works at Irvine have been for years rising in celebrity. The cause of this is chiefly the enterprise of Mr. Holmes, and second, the admirable qualities of a speciality in the construction of his carriages, namely: the use of single-plate springs—an American invention, which has been largely applied in the light and elegant vehicles used by private gentlemen, and for which Mr. Holmes is sole agent in Great Britain. Their peculiarly handsome appearance has been frequently noticed in the daily newspapers. A Glasgow contemporary, in its report of the Agricultural show at Ayr, says: 'There is a lightness and elegance of finish about all the Irvine-built machines which alone would make them attractive to purchasers, but Mr. Holmes's strong point is the springs, which require no notice to recommend them.'"

THE GLASGOW EXHIBITION.—The *North British Mail*, speaking of the Glasgow Exhibition, says: "The show of carriages is exceptionally large, and of the highest order of merit. James Henderson & Co., Glasgow, exhibit a splendid collection of high-class carriages, embracing many new designs and improvements in general outline and detail. The unique and graceful appearance of their new 'Elysian' brougham on C-springs at once attracts attention. It has an elegant and luxurious appearance. The firm also show their well-known side-light landaus. A most exquisite little 'Elysian' brougham on elliptic springs is also shown, lined with golden brown plush, artistically arranged. It is mounted in steel, in the use of which metal Messrs. Henderson have become quite famous. Sorley & Smith, of Bothwell-st., also have a most substantial display of carriages, embracing a landau with many useful improvements, including Mackenzie's patent roof wagonets, tandem 'chapel-carts, prince dog-carts, pony 'chapel-carts, pony dog-carts, and two neatly-designed croydons. The firm have a new patent spring fitted to several of their machines, which works from the inside."

TRADE REPORTS FROM SPECIAL CORRESPONDENTS.

TRADE REPORT FROM WASHINGTON AND BALTIMORE.

WHILE making a short Southern trip recently, I had the pleasure of visiting several carriage and wagon factories in Washington and Baltimore. As my stay in each place was short, I had to forego making a general round among the craft, but I briefly mention below some of my visits. Business, with few exceptions, was dull; but the hope was commonly expressed that there would be a fair fall and winter trade, and a general revival next spring.

WASHINGTON, D. C.

In Washington, Messrs. John McDermott & Bros., of 310 Pennsylvania-avenue, and Mr. A. J. Joyce, of 412 14th-street, N. W., are the principal builders of car-

riages, light and heavy. Messrs. McDermott & Bros. have eight forges in constant operation, employ about 45 hands, and frequently fill large orders for the United States Government. Mr. Edgar O. Davis is foreman of their body-shop, and attends to the drafting.

Mr. Andrew J. Joyce employs about 20 hands, and also manufactures both light and heavy work, many fine specimens of which were shown to us, which compare favorably with those of the best builders. Mr. W. T. Lawton has charge of the wood-shop and drafting, and he will please accept our thanks for courtesies shown us.

Mr. Wm. Walter, of 319 14th-street, N. W., does not build a great number of new vehicles, but confines himself mostly to repairs, of which he has a good share. Mr. Walter has been located in Washington for many years, and is in good circumstances.

Mr. Robert H. Graham, of 410 Eighth-street, N. W., employs only a few hands on new work, but his shops are mainly devoted to repairs, of which there is apparently an abundant supply on hand.

Mr. John W. Young does only repair work and employs one set of hands, the new work in the repository being principally of New-Haven and Wilmington build. Two brothers of Mr. Young, Thomas E. Young and Wm. A. Young, have carriage repositories on Pennsylvania-avenue, the former at No. 464 and the latter at No. 456.

BALTIMORE, MD.

In Baltimore the trade was fair during the spring months, and new carriages were in demand, especially of the heavier grades. Messrs. Riddlemoser & Wetherly, of 92 N. Fayette-street, report business still fair, and they have sold all their landaus and a fair proportion of light work. About the usual number of hands is employed. In the wood and blacksmith-shops we were happy to meet some of our former shopmates.

Mr. Henry O'Connell, of No. 118 N. Howard-street, has, since his removal from 29 N. Gay-street to his present quarters, more than doubled his repair business, and realized a fair increase in the sale of new work as well. Mr. O'Connell builds all grades of work from the buggy to the landau, and in the most thorough manner, using the best materials. Mr. Wm. O'Connell, an elder brother, acts as his business manager. About 25 hands are employed constantly.

Messrs. Wm. Bowers & Son, of No. 406 N. Baltimore-street, are also builders of first-class work, whose reputation is widely known. All grades of work are built, from the one-man wagon to the landau, and especial care is taken with the finishing part. Mr. Bowers works 3 fires, and employs about 25 hands. Business was brisk in the spring with this firm, but is quiet at present.

Messrs. Graf & Faethe, of No. 23 North-street, make a specialty of Dayton Wagons, of which they build and sell a great number, both with and without a top, and of all sizes. They also do a large repair business. They have 2 fires, and employ about 16 hands.

Messrs. Heimiller & Bro., of No. 131 E. Madison-street, who had worked together for a number of years and built up a paying business, lately dissolved partnership, Mr. William Heimiller remaining at the old stand, while Mr. Henry Heimiller has opened a new place at No. 112 E. Madison-street. Business was good until July, when it became very quiet. About 15 hands are employed, on the average, in both shops.

Mr. Geo. Kirschenhofer, located at No. 335 E. Eager-street, builds both carriages and wagons, but principally carriages of the lighter grades. He is a blacksmith, and a good one; and his shop, although not large, is arranged well and kept in first-class working order. One fire is at present in operation, and he employs 10 hands.

The builders of business vehicles do not seem to share in the present dullness of the carriage trade, but are as busy as can be. Mr. Herman Born, of Washe and Fremont-streets, is one of the principal of these. His shop is well arranged and systematized. Two sons assist the father in the care of the business; the elder one, a blacksmith, working on the forge, while the younger tends to the outside business. Mr. Born has 3 fires, and employs about 20 hands.

Messrs. W. & J. H. Leonhardt, of No. 25 Saratoga-street, are busy making their "Peerless Dumping Carts," patented by them. Several important improvements have been added to it since publishing the drawing of this cart which appeared in the October number of *The Hub*, 1883. They are now building such carts to hold two tons of coal. The increasing demand has led the firm to enlarge their factory, but they say that, notwithstanding the increased facilities thus afforded, they will be obliged soon to make another addition to their works. At present 22 hands are employed, but this force will have to be increased shortly, as orders are coming in rapidly.

Mr. Henry Meisner builds both carriages and wagons, and enjoys a good reputation in both branches. The present dull times have seemingly not affected him, as his shop is full of work, and his full force of hands is employed.

Mr. Geo. Hausch also ranks among the principal wagon builders, and enjoys a good reputation as such. His endeavor to put up good work has been crowned with success, as there is always work enough to keep his hands constantly employed.

Mr. J. Ritchie Wilson, of No. 115 Hillen-street, is trying hard to build up a business in the wagon line. He is a blacksmith by trade, and a good one in the line of wagon making. His present force is small, but with fair prospects of an increase in the near future.

ALBERT KEHRL.

FLY-LEAVES FROM A TRAVELER'S NOTE-BOOK.

VIII. LOCALITY: NEW-YORK STATE.

EDITOR OF THE HUB—DEAR SIR: I will now continue my series of "Fly-Leaves" by giving you a few items regarding the carriage trade in New-York State.

LOCKPORT.—There are three shops in this place. Messrs. Ira Bronson & Son are doing fine light work and general jobbing. They are an old concern, and have a fine new shop and repository. They are both fine mechanics, and, if any fault can be found with them, it is merely that they work too hard.

Near the Judson House is J. J. Frasier, who has a good, roomy, brick shop, and does jobbing and some new work to order. He seems to be making headway, is working ten hands, and no doubt is doing well.

S. R. Talbot also has a good shop, and is doing a fair amount of business. The failure of the crops last season in western New-York, and notably the fruit crop last fall, has helped to make the trade in this section light this season, but they all hope for a better trade in 1885.

MEDINA contains one of the largest and best builders in the western part of the State, namely, E. Davey, who has been there many years, has ample means, takes life easy, and lets the boys run the business, excepting for his general oversight. His son is in the office, and his nephew, Byron, on the road selling work, and if any one can tell a better story about carriage work than the latter, he has not yet showed up in that section of the country. Mr. Davey's business is large, and his work second to none.

ALBION is the home of Henry Sears, who also lets the boys run the business, which they do well. This is an old concern, and has a good reputation for good work and fair dealing.

Here also are Danforth & Son, who have a good shop near the Orleans House, and are doing general jobbing and some new work. They have done well in the past, and are strictly reliable in every respect.

BROCKPORT.—Here we find but one firm making new work, namely, Thos. Brown & Co. The company is Clark Veasy. Mr. Brown is a wood-worker and Mr. Veasy a trimmer. The latter, before going into this firm, worked in some of the best shops in the country. They are both fine mechanics, and make excellent work, and are doing fairly well. They are at present going slow, waiting for crops to develop before going ahead fast. The fruit crop here was a failure last fall, which hurt the carriage trade as well as others.

CLARKSON (one mile from Brockport).—Here we find Fred R. Hixson, late Hixson & Costello. Mr. Hixson has been at Clarkson several years. He is a painter by trade, and an excellent one. He is doing a good business in fine light work, and has a fair sleigh trade. His aim is to make nothing but a No. 1 work, and he is doing well. He too is a very pleasant man to meet. Both Mr. Hixson and Thos. Brown & Co. (last named) have a good sleigh trade, and sold nearly all they made last winter. They are both entitled to all the success that hard work, skill and ability can give them.

ATTICA contains two good shops, namely, those of Charles Morganstern and Danber Bros. They are both good concerns, doing good work, and are strictly reliable in all respects.

ROCHESTER.—Every body knows about the great firm of Jas. Cunningham, Son & Co., located here, for their carriages and hearses are in use in nearly every city in the Union.

Some two years ago Mr. A. K. Hughson went from Syracuse to Rochester to do a large carriage business for the trade. I presume he is doing well. He is one of the most genial men in the trade, and I wish him success.

Zimmer & Schwain last year succeeded Mr. Stewart in the business of making fire apparatus and heavy business wagons, and are located near the old central depot in Rochester. They are doing excellent work, and seem to be worthy successors to Mr. Stewart, who was one of the best fine wagon-makers in the State.

SKANEATELES.—Here we find John Packwood, who has been in business for many years. I remember it was once said of him in *The Hub*, that "the man doing the largest carriage business in Auburn is Mr. Packwood, of Skaneateles." He sells considerable work in Auburn, and does more or less jobbing for that city, which is distant but a few miles from him. He makes excellent carriages, has a fair sleigh trade, and, in spite of the dull season, seems to be holding his own. He is assisted in his business by his son-in-law, Mr. Dick Dillingham, who is a good salesman, and has worked up quite a trade away from home. Mr. Packwood also has a promising export trade started, which I hope will prove successful. No shop in the State turns out better work for the money than does John Packwood.

SYRACUSE.—The carriage business here is taking on large proportions, rivaling some of the Western cities. H. A. Moyer began business about 5 years ago in a small shop at Cicero, N. Y., nine miles from Syracuse, and off from the railroad; but he found he was out of the market, as no one wanted to go so far off the railroad to buy carriages. He therefore came to the conclusion that the place to do business was where business was done, and consequently came to Syracuse, where he has been doing an increasing business ever since, and he is now doing as large a trade in light work as any shop in the State. His experience illustrates what pluck and push will accomplish; but success of this kind has, of course, to be attended by business ability, for success does not come by chance. Mr. Moyer has rare tact, and is a first-class business man. He is fully entitled to the success he has attained.

Short & Smith, of Syracuse, have a large trade in business wagons and light work.

The Lyons Carriage Co., Thos. Lyons, President, are doing quite a large business, and, like the last two, are also making work for the trade.

Thos. D. Lines, formerly of Lyons & Lines, is doing a nice business in fine work for the city trade, and also sends some work to Chicago. He makes excellent work, and gets good prices.

Frank H. Foster is doing a good business in fine work for city trade, and also a good jobbing business.

There are several other concerns in Syracuse that make carts a specialty, besides many small wagon and jobbing shops, all of which seem to be doing well. Syracuse is a fine city, and has always had a reputation for good carriage work.

CORTLAND.—I cannot tell your readers much about the Cortland Wagon Co. which they do not already know. I well remember when it was Fitzgerald & Gee, making about 200 wagons a year, afterward changed to Fitzgerald & Kinney, and then to the Cortland Wagon Co., who rapidly increased their annual product from 1,000 wagons a year up to 5,000. I can't tell you how many thousand platform wagons and light buggies they make now, but their business is immense.

Closely allied to the Cortland Wagon Co. is the Cortland Omnibus Co., superintended by Mr. W. T. Smith, who was formerly in the same business in a small way at Homer, N. Y. They are doing a fine business in light and heavy omnibuses, and find a steady market for them both West and East.

We also find here Mr. C. B. Hitchcock, who is making light work to some extent, and doing a large business in cutters and sleighs, which he sells to dealers wherever runners are used. Both of the last-named concerns are ably managed, and very prosperous.

OSWEGO does not have a large business in carriages. The two leading shops are those of Denton & Son, and Luther Weatherby. Mr. Denton has been in Oswego for many years, has always done fine work, and has a reputation second to none for fair dealing and good work. He is what can be called an "old-school carriage-maker." He is ably assisted by his second son, the elder having gone to Kansas City, Mo., to make his fortune.

Mr. Weatherby has also been in Oswego for many years; he too has a reputation for good work and fair dealing. There are other smaller shops here, but I have not space to mention them individually.

Yours truly,

E. D. MOORE,
Of the Royer Wheel Co.

DISPLAY OF CARRIAGES AT THE RECENT CALCUTTA EXHIBITION.

NO. 8 OLD COURT-HOUSE CORNER,
CALCUTTA, INDIA, March 18, 1884.

EDITOR OF THE HUB—DEAR SIR: I venture to send you a few notes respecting the late exhibition, which may be useful to you, and also rough sketches of our six exhibits, of which four received awards.

Great difficulty was experienced by the executive in getting capable judges, as most of the practical men were exhibitors; and, like most colonial exhibitions, not much regard should be attached to the awards, especially the Calcutta Exhibition awards. Among the judges were two stable-keepers and an ironmonger, and consequently we were not much surprised that common-class work should receive high awards, while excellent work was either left out, or considered third or fourth-class. In referring to certain improvements, one of the judges remarked that "the more improvements builders attach to their carriages, the more they are likely to get out of order."

After these remarks we could well understand how such magnificent carriages as those exhibited by Messrs. Offord, of London, should be placed in the second-class category. Their Angular Landau, hung with braces upon a C and under-spring perch carriage, did special credit to its builders, and was undoubtedly the finest piece of workmanship on exhibit. Its painting was green, with light green lines, and imitation sticks painted on the quarter panels. Trim-

ming, silk taboret, relieved with gold. The body was fitted with Offord's patent hood-lift, no joints, rubber steps. Their other exhibits included a Canoe Landau of heavier construction, hung on elliptic, elbow and dennet springs; and Parisian Victoria, hung on C and under-spring perch carriage. The latter magnificent carriage was sold almost as soon as it entered the exhibition.

McNaught and Smith, of Worcester, Eng., exhibited a Landau on C-springs and light steel perch, and also a Side-light Landau. The painting was very effective, namely, blue, with light blue moldings, edged with fine lines of white. Trimming, blue morocco. The front worked on the motion known as the parallel, and the coachman's-seat on hinges, to allow the front to fall. Self-acting steps were attached to the side-light, which was hung on elliptic, elbow and dennet springs. An excellent set of harness was also exhibited by this firm.

Messrs. J. Marston & Co., of Birmingham, Eng., exhibited a very serviceable cab, painted chocolate, and fine-lined with amber. If cabs were fashionable in India this style of cab would no doubt answer well, as means of ventilation were plentifully supplied. Messrs. Steuart & Co., of this city, hold a patent for a Victoria Landulet Hansom, the hood of which falls the same as that of a Victoria, making a complete open carriage; and when closed it has the same means of ventilation as in Messrs. Marston's cab; yet few have been sold by Messrs. Steuart.

Messrs. Atkinson & Philipson, of Newcastle, Eng., exhibited a Tilbury, a very cosy and suitable trap for the Indian market, and also a highly-varnished cart, with chocolate moldings and black fine lines,—a clean, smart-looking trap.

Vesey & Co., of Bath, Eng., exhibited a Victoria Phaeton, painted blue, with white lines, lined with blue morocco, and fitted with the Hickmut hood-lift; also a Stanhope Phaeton with movable hood, painted green, with crimson lines; trimming, green; and a Dog-cart, painted brown, with tan lines, and brown trimming.

The Bristol Wagon Works exhibited a Parisian Phaeton and Croydon Car, both highly varnished, with black lines, and trimmed with green cloth.

Australia was represented by Stephenson & Elliot, who exhibited a light buggy yoked to a pair of model horses. The buggy was painted black and gold, and looked well.

The Ballarat Carriage Co. exhibited a very light buggy, painted black, with straw stripes and white fine lines.

T. L. Cottrell exhibited a Barouche hung on C and under-spring perch carriage. Painting, lake, with crimson stripes and lines. Trimming, drab taboret. A neat foot-brake was fitted to this carriage, and worked with a spiral spring.

Alfonso Taber, of Austria, exhibited a neat miniature Side-light Landau. Painting, blue, with light blue stripes. Trimming, blue silk taboret. The fore-carriage was of peculiar construction, having no axle-bed, the wheel-iron stays and tail end being the only supports. They also showed a Victoria Phaeton hung on elliptic springs. Painting and lining, blue. The fore-carriage was of the same construction just mentioned. These carriages were heavily mounted in silver, the edges of the dashes and wings being covered.

G. Semiladis, of Pondicherry, India, exhibited two Phaetons, very light, painted green, with light green lines, and green trimmings.

Smith, of Allahabad, exhibited a specialty Dog-cart, very highly finished. Most of the iron work was silvered, and even the tires were polished. By working a screw behind, the shafts could be raised or lowered to suit horses of different sizes.

Johnson, of Allahabad, exhibited a small Warwick Cart, painted green, with light green lines. Trimming, green cloth. The shafts of this cart were attached back and at the draw-bar to the axle, and the body rested on the springs. How would this do for knee motion? It seemed to me to greatly increase it. (This cart received an award!! in preference to the highly-finished one mentioned above.)

Cook & Co., of this city, exhibited a Norfolk Cart, a District Cart, a Trotting Gig, and a Stanhope Gig, all serviceable traps for rough country work.

Don & Co. exhibited a Brougham, painted blue, with pretty lamps, and also a Stanhope Phaeton, painted green, with green lining and trimming.

Deschamps & Co., of Paris, Madras and Calcutta, exhibited a Canoe-shaped Landau, painted blue, with white fine lines, and blue morocco and cloth trimming. They also showed a smart-looking Vis-a-vis, painted Bismarck brown, with orange lines; and a Chapel Cart with movable hood, painted blue, with orange lines.

Dykes & Co., of Calcutta, exhibited a semi-State Landau, of canoe shape, two Angular Landaus, two phaetons, two carts, a brougham, barouche and buggy. These were all strong-looking conveyances, and were not made for the exhibition, but taken from the stock of the firm.

Steuart & Co., of Calcutta, exhibited six conveyances specially made for the exhibition. Their light Canoe Landau, for one or a pair of horses, was hung on elbow, elliptic and dennet springs, and fitted with McKenzie's patent hood-lift (to work the cant rail), Bevan's patent double-fold self-adjusting steps, ventilating glass-frames, and iron skeleton boot (after Offord's design). Painting, medium green, with black stripes and orange lines. Trimming, green morocco, in diamond and pipe pattern, taken from the design published in *The Hub*, vol. 23, page 291. They also showed a Landulet hung on elliptic springs, painted a rich lake, glazed with carmine, and fine-lined with crimson. Trimming, maroon morocco. The circular glasses were made to drop. The front pillar was cut half way up, and the circular part of the roof stood erect, forming a back rest for the front seat when the hood was down. It was fitted with Cowburn's insulating rubber blocks, Bevan's self-acting steps, etc. Their miniature Circular-front Brougham was painted blue, with amber fine lines, and blue morocco trimming, relieved with gold lace. Anti-rattlers were fitted to all the movable blinds and glass-frames, and Valentine's varnish was used on this carriage in order to preserve the blue color, as our varnish has a tendency to give the blue a green tint, and to obviate this, we used Valentine's on blue surfaces. This carriage received the highest possible award, namely: a gold medal and diploma. Their next exhibit was a Victoria, adjustable to self-driving, hung on Auster's patent beaded spring and iron loops, with concealed front seat. Painting, Bismarck brown, with black stripe, and fine lines white. Trimming, brown morocco. The cushion and back designs were taken from *The Hub*, vol. 21, page 311. Next was a Lorne Tandem Cart, with a new adjustable lever with wood and iron spring handle. The handle was made in two parts which were hollow, to allow a spring to work, which forces the handle open, and a small catch comes down into small teeth in the latch. The handle requires no forcing outward, as in the old style, and can be worked while in motion. Stop-hinges were fixed to the door, which dispense with all rattling chains and hooks, and drop enough to allow the hind seat as much leg-room as the front. Their fifth exhibit was a French Mail Phaeton, hung on elliptic springs and fitted with Burt's door and seat catch, and Bevan's ladies' steps. Painting, Bismarck brown, with a French gray undercarriage, and black and crimson stripes. Trimming, maroon morocco. Lastly, they showed a State Landau, built for one of the chiefs, and exhibited at his request. It was heavily mounted in silver and gold, and painted with Masury green, with gold stripes and lines. All the iron-work was silver-plated, and also the four heavy State lamps, and State standards behind. A massive hammercloth was affixed to the front. It was lined with green taboret. This carriage was not entered in the official catalogue, or it would probably have received a prize.

I beg to add that I shall at all times be glad to receive from you or your subscribers any information you may think useful to us in the East, viz.: American methods of painting, and descriptive pamphlets regarding carriage specialties.

Very truly yours,

A. W. WESTROP,
Foreman with Steuart & Co.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

Conrad B. Day & Co., Philadelphia, Pa... 516
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct.....
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Ino. A. Gifford, 17 Park Place, New-York.
Kemper Bros., Cincinnati, O..... 516
Ten Eick & Kent, 1553 Broadway, New-York 516
S. D. Kimbark, Chicago, Ill..... 517

AXLES.

Dalzell & Co., So. Egremont, Mass. 528
Improved Collinga Axle.
Goodyear & Ives, New-Haven, Ct..... 516
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O..... 504
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 519
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilmington, Del..... 500
Smith, Carswell and Vandenbraak Axles.
Wood, Smith & Co., Fort Plain, N. Y..... 524
Fort Plain Spring and Axle Works.

BODIES.

F. T. Clymer, Wilmington, Del..... 510
Carriage Bodies and Carriage Parts.
Jas. Driscoll & Sons Co., Springfield, O.... 507
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 497
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago, Ill..... 517
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O..... 528
Specialty: Eureka Bodies.

BOLTS.

Norwich Bolt Works, Norwich, Conn..... 502
Genuine Norwry Iron Bolts.

CARRIAGES FOR THE TRADE.

D. A. Altick & Sons, Lancaster, Pa..... 524
Phaetons and light work.
D. Argerbright, Troy, O..... 525
Road Cart.
F. A. Babcock & Co., Amesbury, Mass.... 515
The Clarkson Road Cart.
S. R. Bailey, Amesbury, Mass..... 524
Sleighs in the Wood and Iron.
Michigan Buggy Co., Kalamazoo, Mich... 506
Sleighs and Buggies.
Renick, Curtis & Co., Greencastle, Ind.... 506
The Renick & Curtis Patent Road Cart.
Youngstown Carriage and Wagon Co., Youngstown, O..... 503
Buckboards and Buggies.

GLASS.

Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 516
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

Baeder, Adamson & Co., Philadelphia, Pa. 502
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 522
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

Active Mfg. Co., Cincinnati, O..... 520
Beecher Mfg. Co., Meriden, Conn., 3d cov. page
Regular and Special Forgings.

Cincinnati Screw and Tap Co., Cincinnati, O. 517
Drills, Screws, Taps, etc.
The E. D. Clapp Mfg. Co., Auburn, N. Y.. 520
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
C. Cowles & Co., New-Haven, Ct.....
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
Cortland Box Loop Co., Cortland, N. Y... 502
Cortland Buckle Loop.
Crandal, Stone & Co., Binghamton, N. Y. 505
Carriage Hardware.
Dayton Malleable Iron Co., Dayton, O.... 511
Carriage Hardware.
W. M. Farr, Dowagiac, Mich.....
Common Sense Sand and Mud Band.
M. T. Gleeson, Columbus, O..... 523
Fine Carriage Mountings.
Herbrand Co., Fremont, O..... 523
Herbrand Gear Irons.
Kerr & Reid, Bridgeport, Ct..... 523
Cart Irons.
S. D. Kimbark, Chicago, Ill..... 517
Carriage and Wagon Hardware.
Geo. G. Larkin..... 503
Carriage Top Stays and Sleigh Shoes.
Metal Stamping Co., New-York..... 529
Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)
Queen City Forging Co., Cincinnati, O.... 521
Carriage Hardware.
Rubber Step Mfg. Co., Boston, Mass..... 511
The Rubber Covered Carriage Step.
H. D. Smith & Co., Plantsville, Ct.....
.....4th cover page
The "Encircled S" brand of Fine Carriage Forgings.
H. M. Strieby & Co., Newark, N. J..... 524
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
Topliff & Ely, Elyria, Ohio..... 515
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
Vehicle Shaft Supporter Mfg. Co., Cincinnati, O..... 505
Iron Shifting Rails.
Walter & Miller, Fremont, Ohio..... 527
Seat Rails, Forging to order, etc.
White Mfg. Co., New-Haven, Ct..... 502
Pole Crabs. (See Lamps.)

IRON AND STEEL.

C. B. Clarke, St. Louis, Mo..... 514
Silvester Patent Tire.
S. D. Kimbark, Chicago, Ill..... 517
American and Norway Iron, Steel Tire, etc.
Wm. & Harvey Rowland, Frankford, Philadelphia 512
Iron and Steel. (See also Springs.)

LAMPS.

C. Cowles & Co., New-Haven, Ct.....
(See also Hardware and Mountings.)
White Mfg. Co., Bridgeport, Ct..... 502

LEATHER.

Evans Artificial Leather Co., Boston, Mass. 520
A Substitute for Leather.
T. P. Howell & Co., Newark, N. J..... 500
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

Abbott & Co., Hudson, Mich..... 522
Little Giant Hub-Borer.
W. F. & John Barnes, Rockford, Ill..... 518
Foot and Steam Power Machinery.
Bentel, Margedant & Co..... 502
Woodworking Machinery.
Bradley & Co., Syracuse, N. Y..... 529
Power Cushioned Hammer, and Heating Forge for hard coal or coke.

Capital City Mach. Works, Columbus, O... 505
Standish Imp. Foot Power Hammer or Oliver.
The Egan Co., Cincinnati, O..... 511
Carriage Wood-working Machinery.
Defiance Machine Works, Defiance, O.... 504
Hub, Spoke, Wheel and Bending Machinery.
J. A. Fay & Co., Cincinnati, O..... 506
Woodworking Machinery.
Heald & Morris, Baldwinsville, N. Y..... 506
Engines.
George W. Heartley, Toledo, O..... 521
Little Giant Axle Box Press.
Mason Wheel Co., Crown Point, N. Y..... 504
Wheel Tenoning Machine.
H. A. Moyer, Syracuse, N. Y..... 510
Hub Boring and Boxing Machine.
C. F. Pettingell & Co., Amesbury, Mass... 522
Full line of Patented Carriage and Wheel Machinery.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

John Stephenson Co. (Limited), New-York, 524

PAINTS and PAINTERS' MATERIALS.

Billings, Taylor & Co., Cleveland, O..... 503
Coach and Car Colors and Varnishes.
E. Clinton & Co., Philadelphia, Pa., 3d cov. page
Carriage and Car Painters' Brushes.
F. W. Devoe & Co., New-York... 3d cover page
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa.... 500
Ivory Drop Black.
Miles Bros. & Co., New-York.....
Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.
Chas. Moser & Co., Cincinnati, O..... 502
Palm & Fechteler, New-York..... 499
Transfer Ornaments.
Reno Bros., Pulaski, Pa..... 524
French Umber Filler.
Sullivan & Ravekes, San Francisco, Cal.... 497
Varnishes, Paints, Oils, Glass, etc.
Chas. D. Thum, Philadelphia, Pa..... 521
Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.
Jno. L. Whiting & Son, Boston, Mass.....
Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.
Wadsworth, Howland & Co., Boston, Mass. 506

PUBLISHERS.

"The Hub," New-York City.....
.....503, 514, 517, 528, 529
E. Taylor & Co., London, Eng..... 510
"The Stable."

SPRINGS AND GEARS.

M. Barry, Valparaiso, Ind.... 529
Champion Gears.
Bridgeport Spring Co., Bridgeport, Ct..... 515
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.
Canton Spring Co., Canton, O..... 505
Carriage, Wagon and Seat Springs.
Champion Gear Co., Lockport, N. Y..... 507
Side Spring.
Cleveland Carriage Bow Co..... 506
Selle's Platform Gears.
Dexter Spring Co., Hulton, Pa..... 512
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.
Henry Spring Co., Winsted, Conn.....
The Henry Single-leaf Rib Spring.
Johnson & Rose, Detroit, Mich..... 517
Springs and Gears.
Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa..... 519
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)
Longstreth & Ayer Mfg. Co., Columbus, O. 525
The L. & A. Adjustable Side-spring.

- Magner Coil Spring Co., Wellsville, N. Y. 529
Improved Thomas Spring and Gear.
- Mulholland Spring Co., Dunkirk, N. Y. . . . 509
The Mulholland Spring.
- C. M. Murch, Cincinnati, Ohio. 526, 527
The Murch Spring and Gear.
- National Vehicle Co., Racine, Wis. 503
Shaw's Patent Gearing.
- T. D. Olin & Co., Cincinnati, O. 499
The Olin Springs.
- Rice Spring & Carriage Co., Pittston, Pa. . 508
Rice Carriage Springs.
- C. W. Saladee, Birmingham, Conn. 514
"Duplex Springs."
- Wm. & Harvey Rowland, Frankford, Philadelphia, Pa. 512
Fine Springs from Swedish Stock. Also Iron and Steel.
- D. W. Shuler, Amsterdam, N. Y. 519
The Shuler Springs and Gears.
- Spring Perch Co., Bridgeport, Ct. 527
Side-Bar Wagon Springs a specialty.
- The Edward Storm Spring Co., Poughkeepsie, N. Y. 519
Storm Side-bar Springs, and Bodies and Gears.
- Henry Timken, St. Louis, Mo. 510, 513
The Timken Cross-Spring.
- Tomlinson Spring Co., Newark, N. J. 516
Fine Springs and Axles.
- R. Tomlinson Spring and Axle Works, 521
Bridgeport, Ct.
Springs: Specialty, The Hamlin.
- Tuthill Spring Co., Chicago, Ill. 502
Fine Springs, including Timken, Brewster, Soule, and other patent springs.
- C. R. & J. C. Wilson, Detroit, Mich. 512
The Wilson Side-bar Cross-spring.
- Wood, Smith & Co., Fort Plain, N. Y. . . . 524
The American Standard Springs and Axles.

TOOLS.

- Chambers, Bros. & Co., Philadelphia, Pa. . 521
Bolt and Rivet Clippers.
- Cincinnati Screw and Tap Co., Cincinnati, O. 517
- S. D. Kimbark, Chicago, Ill. 517
All latest improvements in Tools and Machines.
- J. W. Manneer, Rochester, N. Y. 528
Manneer's Bench Drill.
- Porter & Wooster, Boston, Mass. 511
"Easy" Bolt Clipper.
- Syracuse Twist Drill Co., Syracuse, N. Y. . 525
Drills for Woodworkers.

TRIMMERS' MATERIALS.

- Active Manufacturing Co., Cincinnati, O. . 520
Carriage Dashes. (See also Hardware.)
- American Tack Co., Fairhaven, Mass. . . . 499
Swedes' Iron Trimmers' Tacks, Japanned and Silver Lining Nails and Tufting Buttons. (N. Y. Salesroom, 116 Chambers-st., New-York.)
- Ashtabula Carriage Bow Co., Ashtabula, O. 525
Leather Covered Bow.
- Bridgeport Coach-Lace Co., Bridgeport, 516
Conn.
Coach Laces and Trimmings.
- Cleveland Carriage Bow Co., Cleveland, O. 506
Leather-covered Carriage Bows.
- Cortland Box Loop Co. 502
(See Hardware).
- Crandall, Stone & Co., Binghamton, N. Y. . 505
Carriage Trimmings.
- Excelsior Top Co., Cortland, N. Y. 509
Carriage Tops.
- English & Mersick, New-Haven, Conn. . . .
Carriage Broadcloths, Canopies and Canopy Top Fringes.
- Hardt, Von Bernuth & Co., New-York City, 505
Carriage Cloths, etc.
- Harris Button-Hole Co., Lim., New-York. 523
Pat. Crimped Leather Knob Eyelets.
- Japanese Hair Mfg. Co., Jersey City, N. J. 522
Japanese Hair and Japanese Moss.
- S. D. Kimbark, Chicago, Ill. 517
Cloths, Leather, etc., etc.
- Chas. P. Ketterer, New-York. 510
Wagon Curtain Fastener.
- C. Z. Kroh & Bro., Toledo, O. 518
Tops, Cushions, Backs, Falls, etc.
- Longstreth & Ayer Mfg. Co., Columbus, O. 525
Dashes, etc.
- Metal Stamping Co., 64 Reade-st., New-York, 529
Patent Buckle Loops, Back Lights, etc.
- Parker Carriage Goods Co., Cincinnati, O. 499
Carriage Trimmings in great variety.
- E. Rattey, New-York. 514
Sleigh Dash-Screens.
- F. J. Schmid, New-York. 522
Hand-made Coach Laces, and all kinds of Trimming Materials.
- Ten Eick & Kent, New-York City. 516
Carriage and Sleigh Materials of every description.
- Topliff & Ely. 515
See Hardware.
- Otto Wagner, New-York City 529
Russian Sleigh Plumes.

VARNISHES, JAPANS, ETC.

- Moses Bigelow & Co., Newark, N. J. . . . 508
Established 1845. Fine Coach and Car Varnish Manufacturers.
- J. Babcock & Co., Boston, Mass. 2d cover page
- Billings, Taylor & Co., Cleveland, O. . . . 503
Coach and Car Colors and Varnishes.
- F. W. Devoe & Co., New-York. 3d cover page
Carriage, Coach and Car Colors.
- DeGolyer & Bro., Chicago, Ill. 530
Wearing Body Varnish.
- Felton, Rau & Sibley, Philadelphia, Pa. . . 500
- Wm. Harland & Son, Merton, Surrey, England. 2d cover page
On sale in America by first-class dealers in principal cities.
- Hildreth, Templeton & Co., New-York. . . .
Superfine Coach and Car Varnishes. 2d cover page.
- King Varnish Co., Akron, O. 496
Fine Coach Varnishes.
- Moller & Schumann, Brooklyn, N. Y. 2d cover page
- O'Brien Varnish Works, South Bend, Ind. . 521
- A. W. Palmer & Co., Newark, N. J. 508
- Parrott Varnish Co., Bridgeport, Ct. 2d cover page
- C. C. Reed & Co., New-York City. 518
- E. Smith & Co., New-York City. 501
- Stimson & Co., Boston, Mass. 504
Fine Coach and Car Varnishes.
- Sullivan & Ravekes, San Francisco, Cal . . 497
Varnishes, Paints, Oils, Glass, etc.
- Valentine & Company, New-York. 493, 494
- L. M. West, Rockford, Ill. 522
Carriage-top Dressing.

WHEELS AND WHEEL STOCK.

- C. C. Anderson & Co., Galion, O. 497
Sarven Patent Wheels.
- Bollenbacher & Sons, Bloomington, Ind. . . 502
Spokes.
- S. N. Brown & Co., Dayton, O. 504
Superior Wheels, Hubs, Spokes, etc.
- Crane & McMahon, 38 Park Place, N. Y. . . 516
(Salesroom, New-York.) Spokes, Rims, etc., and Hickory, Oak and Ash Plank.
- Howard M. DuBois, Philadelphia, Pa. . . . 508
Wheels, Hubs, Spokes, etc.
- Hagerstown Spoke Works, Hagerstown, Md. 506
- Hoopes, Bro. & Darlington, Limited, West Chester, Pa. 505
Warner Patent and Plain Wheels. Specialty: Thorough Seasoning and Perfect Work.
- Phineas Jones & Co., Newark, N. J. 511
Patent and Plain Wheels, Spokes, Hubs, etc.
- Lambertville Spoke Mfg. Co., Lambertville, N. J. 516
Wheel Stock, Shafts, Hubs, Poles, Whiffletrees, Plank, etc.
- Longstreth & Ayer Mfg. Co. 525
See Springs and Gears.
- Philip Lebzelter, & Co., Lim., Lancaster, Pa. 516
Fine Wheels and Wheel Material.
- E. K. Morgan, Huntington, Ct. 501
Wheels and Wheel Stock.
- Neil, Tippet & Killian, Lancaster, O. . . . 503
Patent and Plain Wheels and Gears.
- New-York Sarven Wheel Co., New-York. . 518
Branch of Royer Wheel Co., Cincinnati, O., which see.
- Ed. H. Nixon, New-York City. 501
Wheels, Spokes, Felloes, etc.
- Rochester Wheel Co., Rochester, N. Y. . . . 514
Wheels, Hubs, Spokes, Rims.
- Royer Wheel Co., Cincinnati, O. 518
(Branch House, New-York Sarven Wheel Co.) Improved Sarven Wheel with Rouse Hub Bands; also Stoddard Patent and Plain Wheels.
- Shurtz & Slack, Frenchtown, N. J. 500
Plain and Patent Wheels.
- Southern Spoke and Handle Co., Henderson, Ky. 3d cover page
Wagon and Buggy Spokes.
- Springer, Morley & Gause Co., Wilmington, Del.
Wheels and Wheel Material.
- Winch & Sons, Bryant, Ind. 524
White Elm Hub Blocks.

WOODWORK AND MISCELLANEOUS.

- Barton Bell Co., East Hampton, Ct. 508
Sleigh Bells.
- Clem & Morse, Philadelphia, Pa. 527
Elevators for Carriage Shops.
- Combination Seat Co., South B nd, Ind. . . 522
Perkins' Patent Veneer Seats.
- Easy-Starting Whiffletree Co., New-York City 501
- Herring & Co., New-York City. 507
Herring's Champion Safes.

- S. D. Kimbark, Chicago, Ill. 517
Burr Patent Bodies. Carriage and Wagon Wood Material.
- John C. Konrad, New-York. 521
Carriage Drafting and Designing.
- W. Macnaughtan's Sons, New-York City. . 523
Buffalo Robes.
- B. Miller, Paola, Kan 506
Miller Adjustable Horse.
- Frank B. Miller, Enon, O. 529
The Reindeer Cutter.
- Partner Wanted. 502
- John M. Tufts, Jr., 83 Nassau-st., N. Y. . . 525
Office Desks.

Labor Bureau.

SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," free of charge to all carriage mechanics seeking employment, and also to all employers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

"THE HUB," 323 Pearl-street.

Employer's Department.

—WANTED.—Carriage woodworker; one good on phaeton bodies and cutters. Address Isaac Simpson, Brantford, Ont., Canada.

—WANTED.—Agents in the Eastern and Southern States, to canvass and sell Perry Carts and Timken Spring Buggies on commission. Must canvass with sample cart. Abbott Buggy Co., Chicago, Ill.

Workmen's Department.

—WANTED.—A situation by a first-class draftsman and body-maker. Understands both heavy and light work. Address B. S. M., *Hub* office.

—SITUATION WANTED.—A competent carriage painter wants situation in New-York or vicinity. Best reference. Address W. Bauer, 205 Mott-st., New-York City.

—WANTED.—A position as foreman by a New-York carriage-smith. Has had ample experience and can give best of reference. Address B., box 846, Stamford, Conn.

—WANTED.—Situation as traveling salesman, by a practical carriage painter. Salary or commission. Best references. Address E. L. Moran, 310 South Main, Elmira, N. Y.

—SITUATION WANTED by a carriage blacksmith of great experience on N. Y. work, either light or heavy. Can give best of reference. Address A. B., 79 Greenpoint-ave., Greenpoint, Brooklyn, E. D.

—SITUATION WANTED as superintendent in a reliable wholesale carriage factory; 16 years' experience. Can give good references. Address A. L. Denno, P. O. Box 166, Salem, Washington Co., N. Y.

—WANTED.—By a first-class body-builder and general workman, with 19 years' experience, a steady position in a first-class shop. Strictly temperate. Best references. Address A. M. McKee, Jackson, Mich.

—WANTED.—A first-class carriage painter wants a situation within five hundred miles of Philadelphia. Has had charge of one of the best factories in the country. C. E. M., 611 Carman-st., Camden, N. J.



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AKRON, OHIO.

IMPERIAL VARNISHES

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OIL FINISH, &c.

Correspondence Solicited.



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SARVEN
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Band Hub and Plain

WHEELS,

Manufactured from Choice

Second-Growth Timber,

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Send for Price-list.

JACKSON PAT. PHAETON BODY AND CARRIAGE CO.,

MANUFACTURERS OF

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AND

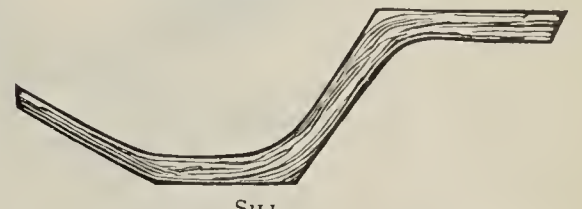
Titus's Pat. Bent Sill Phaeton Body.

Acknowledged to be the best Phaeton Body ever put on the market.

Send for Descriptive Circular and Price-list.



No. 1.



SILL.

SULLIVAN & RAVEKES,
MANUFACTURERS AND JOBBERS

—Paints, Oils, Glass,—

White Lead, Zincs, Colors,

ALMADEN RED.

Agents for **The Lawson Varnish Company.**

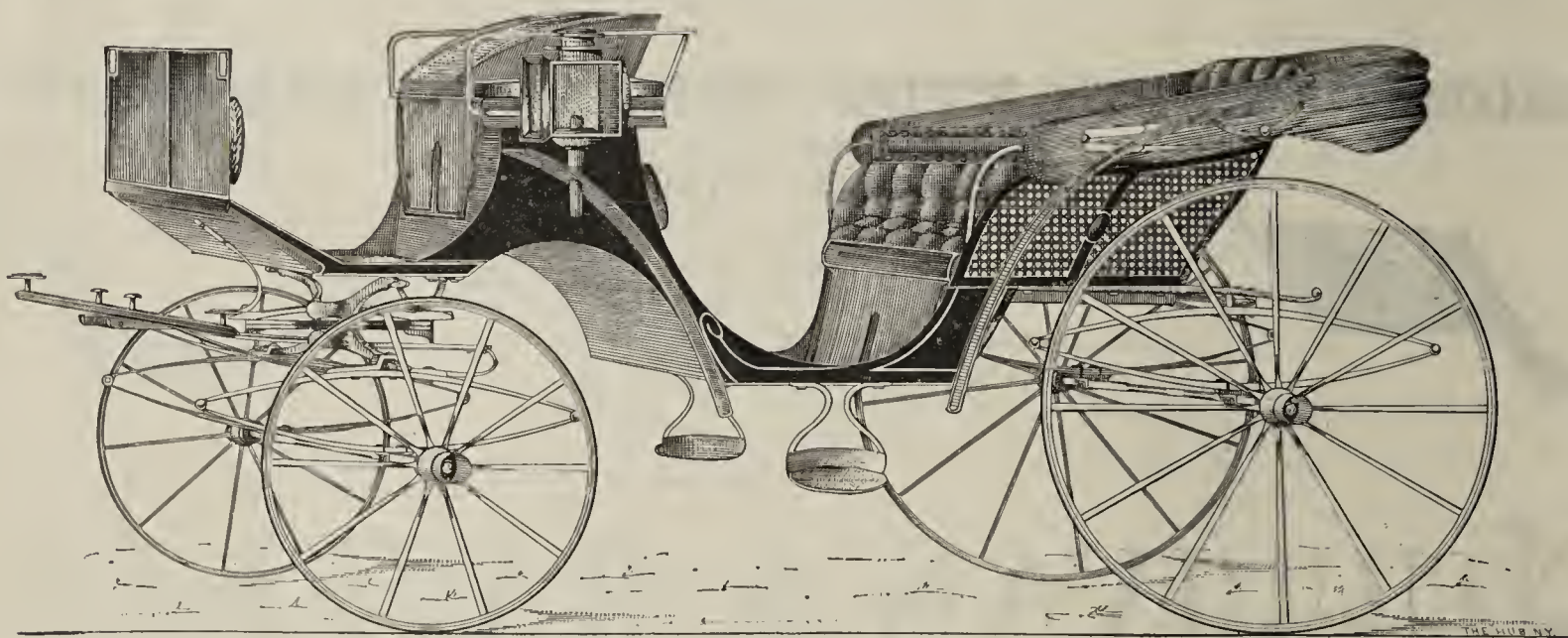
SAN FRANCISCO.

Correspondence solicited.

SACRAMENTO.

Photo-Electrotyping.

Our attention has been called to a circular issued by one of our contemporaries, in which they warn their readers against cuts made by any process except wood engraving. That wood engraving, as a means of obtaining the very best results, has not heretofore been equaled, is a fact which we do not dispute; but we claim and can prove that the parties referred to do not produce better cuts by wood engraving than we are now making by our photo-electrotype process at a much lower price. As a matter of fact, we consider the latter far superior to theirs, but prefer saying too little rather than too much.



Compare this cut, made by the photo-electrotype process, with the best they ever turned out. It has now been printed in 21,000 copies of "The Hub."

WOOD ♦ ENGRAVING.

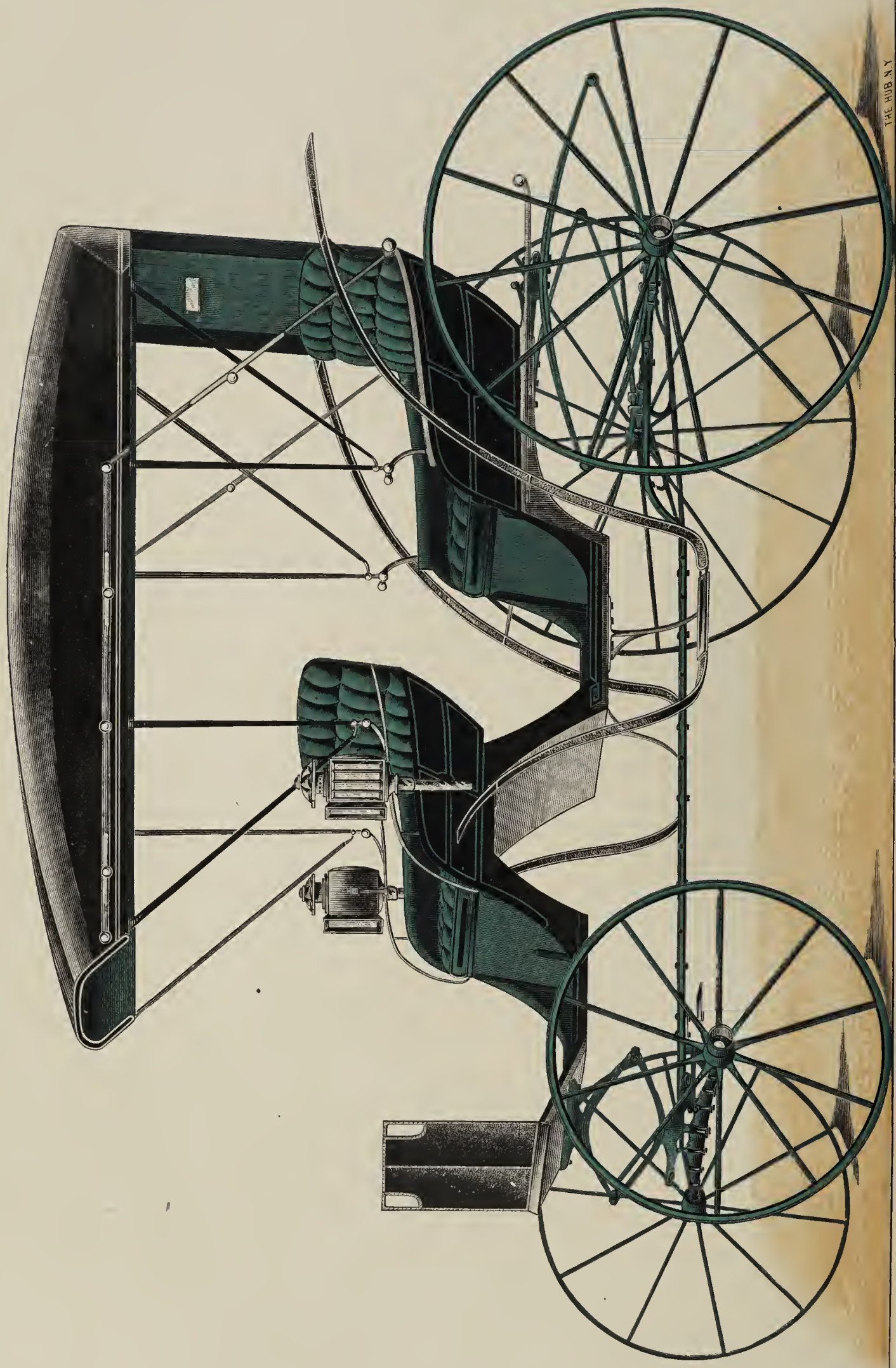
If you intend getting up engravings of any kind, let us know what you want. Our facilities for executing strictly first-class wood engravings are perfect, and we will gladly use our judgment, when desired, as regards the best method of filling your order.

Samples of our wood engraving can be seen in the Fashion Plates in this number. Before giving your orders for fall work, write to

"The Hub,"

323 Pearl-street, NEW-YORK.

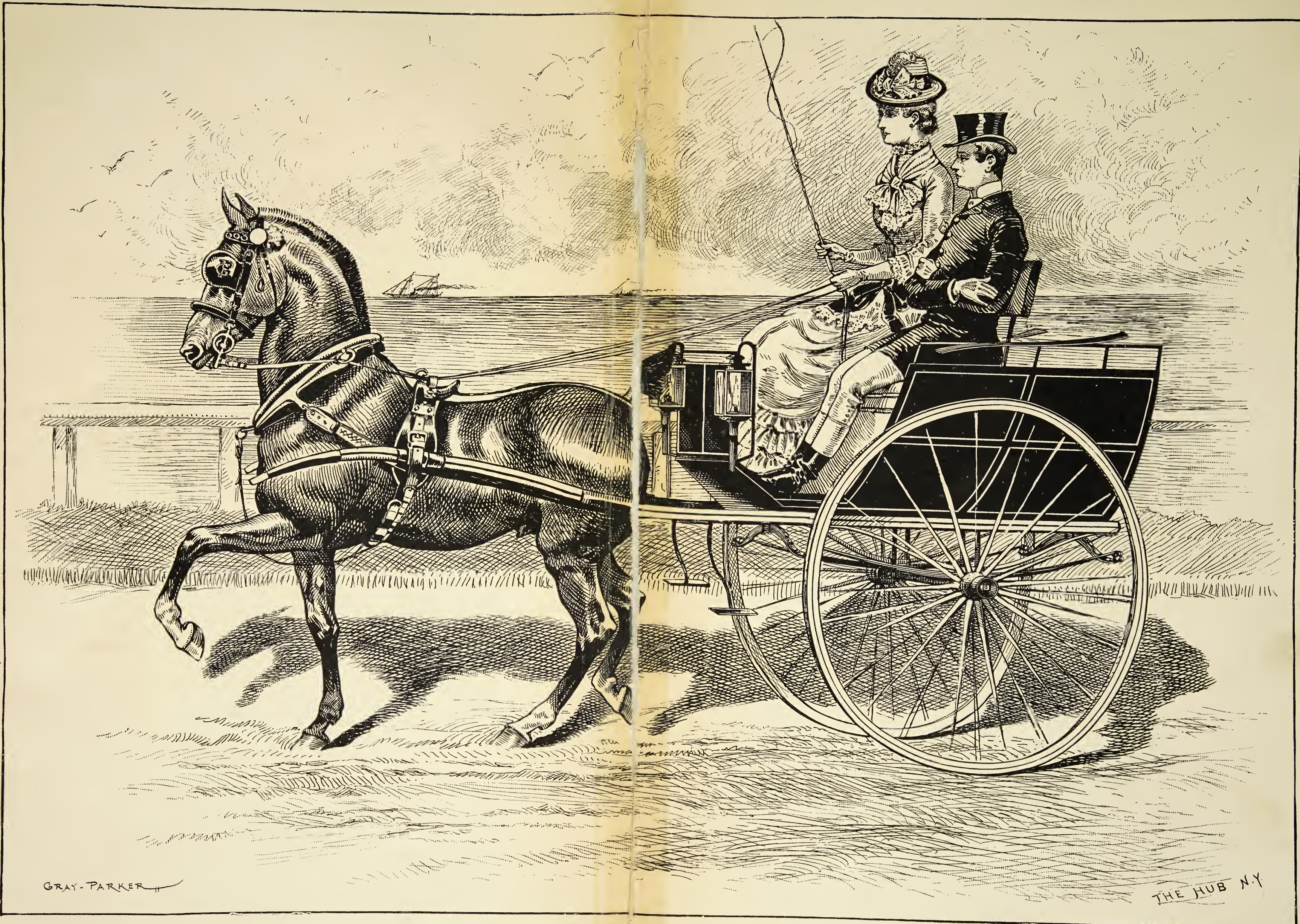
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THE HUB N.Y.

COLORÉD PLATE NO. LII. EXTENSION-TOP PHAETON, WITH MEDALLION SEATS. SCALE, THREE-QUARTER INCH.

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THE LONG-BRANCH BEACH CART.—DRAWN EXPRESSLY FOR "THE HUB," BY GRAY-PARKER.

The Hub's

Fashion Plates: Autumn Season, 1884.

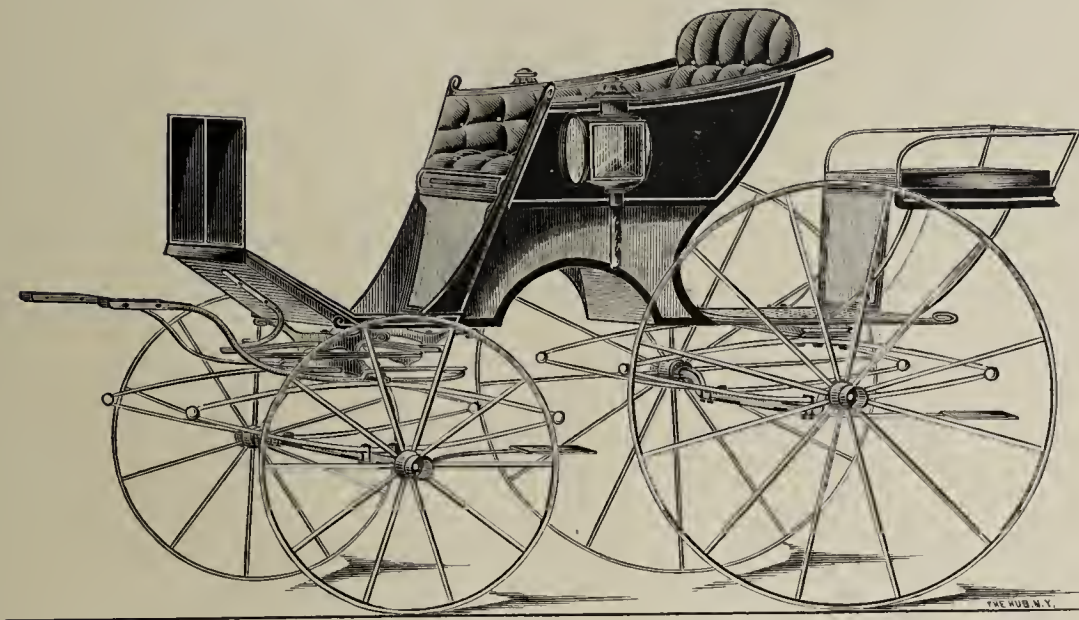


Plate No. 59. LADIES' OPEN PARK PHAETON, WITH RUMBLE.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 541, and also Working Drawing and mechanical description on page 545.

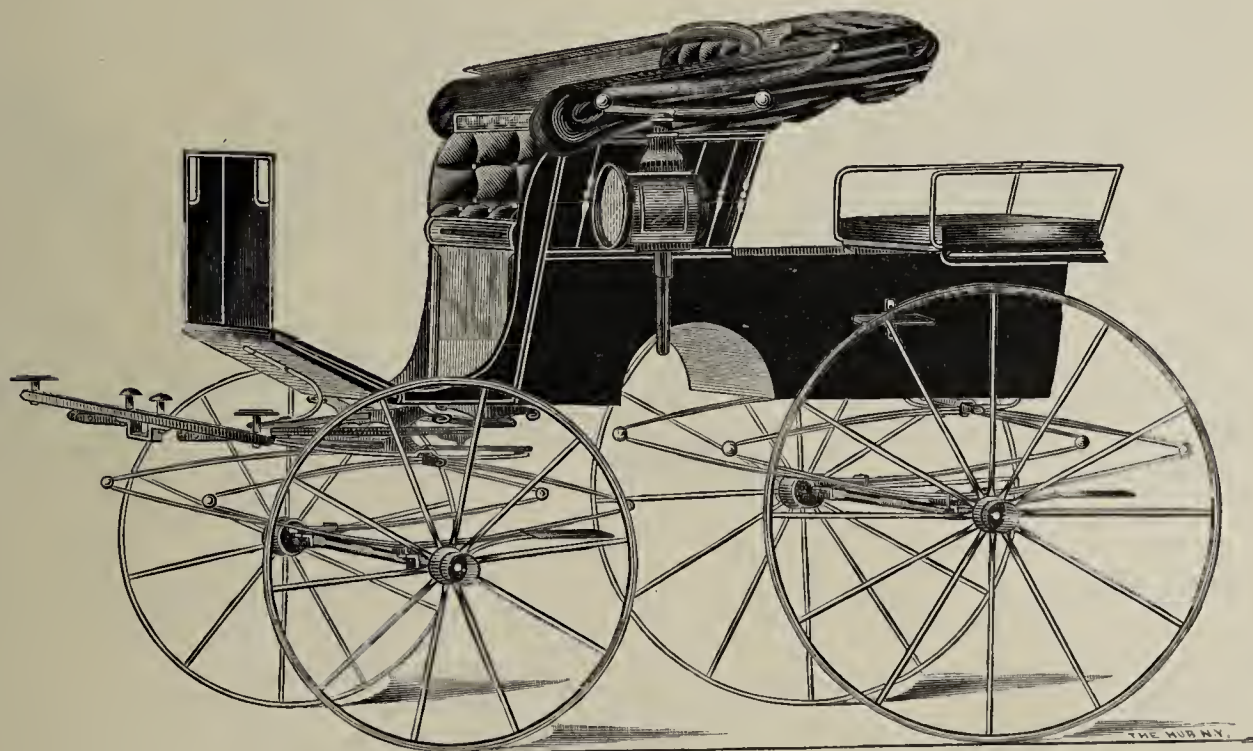


Plate No. 60. STIVERS' STANHOPE PHAETON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 541.

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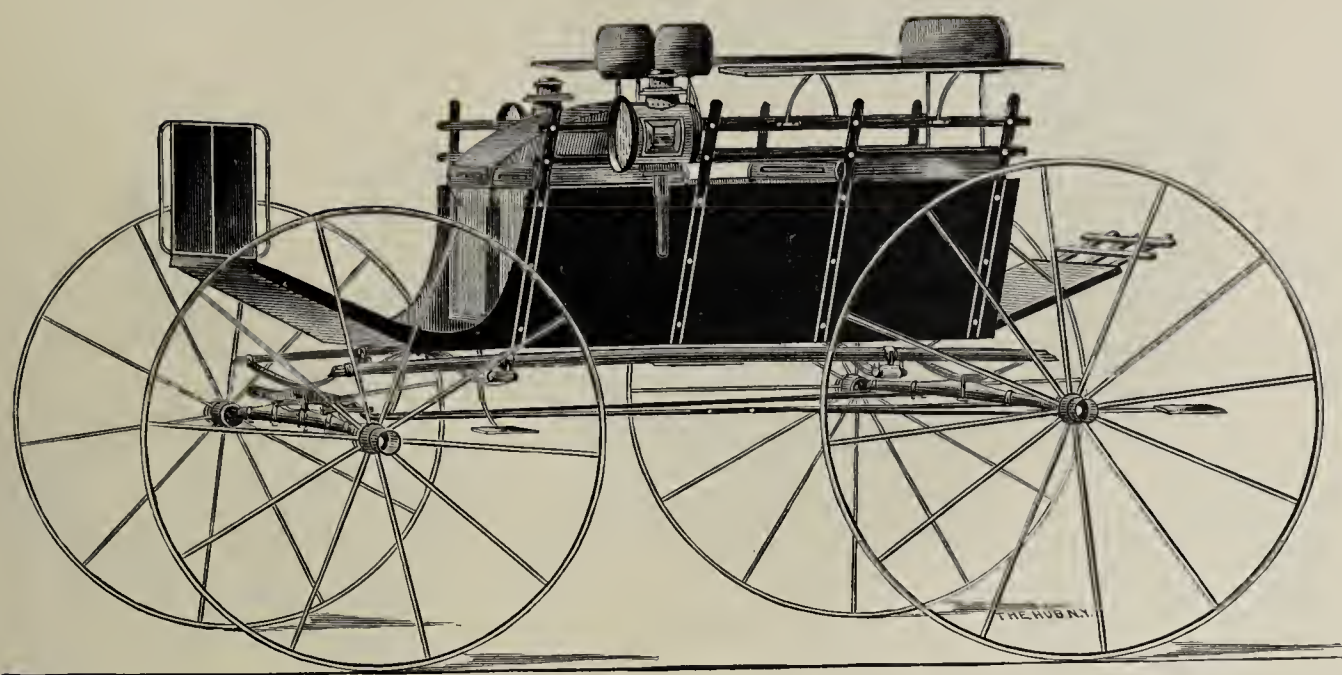


Plate No. 61. DERBY WAGON, WITH REVERSIBLE REAR SEAT.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 541.

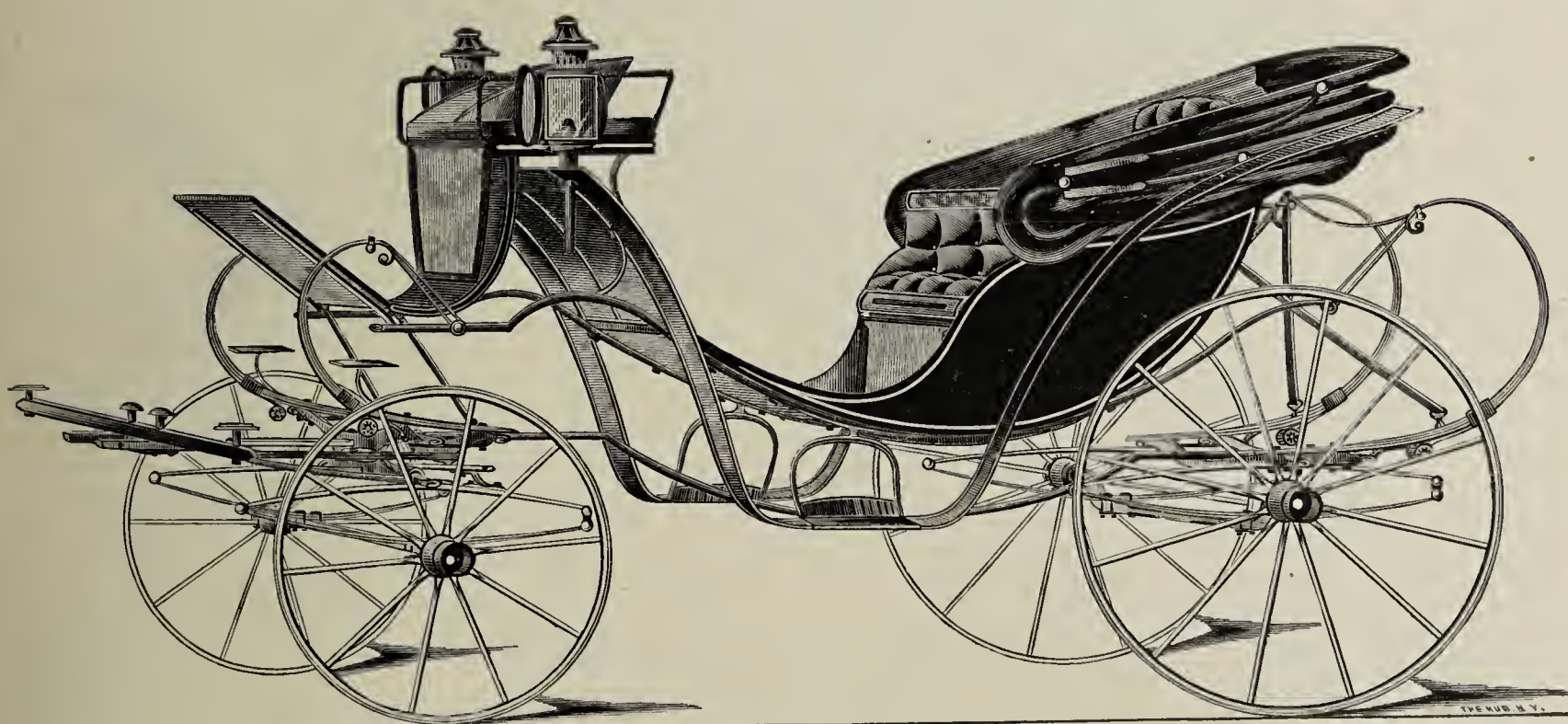


Plate No. 62. BREWSTER EIGHT-SPRING VICTORIA.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 542.

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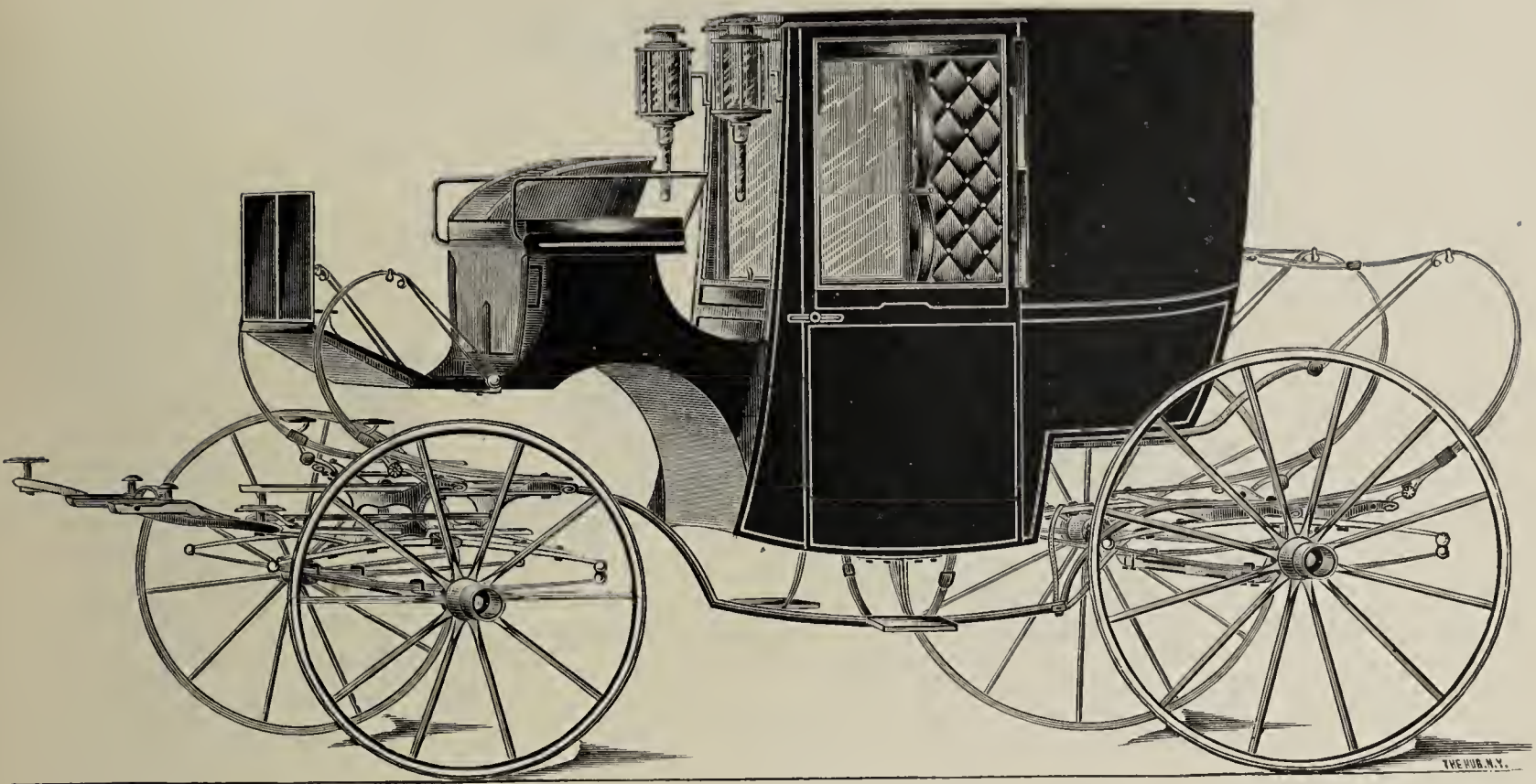


Plate No. 63. MANVILLE EIGHT-SPRING BROUGHAM.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 542.

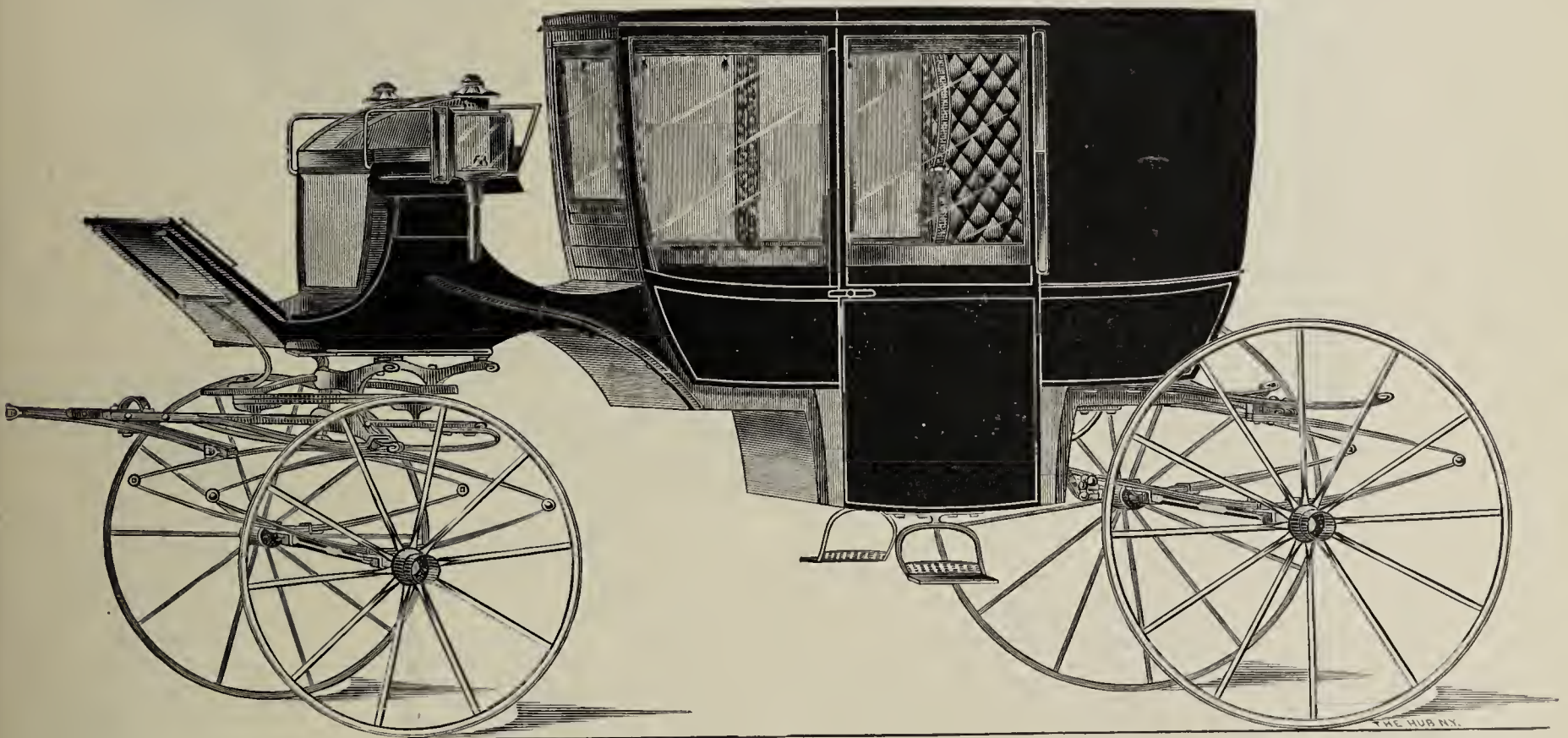


Plate No. 64. KEAN & LINES FALLING-FRONT COACH, ON ELLIPTIC AND PLATFORM SPRINGS.

SCALE, ONE-HALF INCH.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 543.

Handwritten text, possibly a signature or date, located in the center of the page.

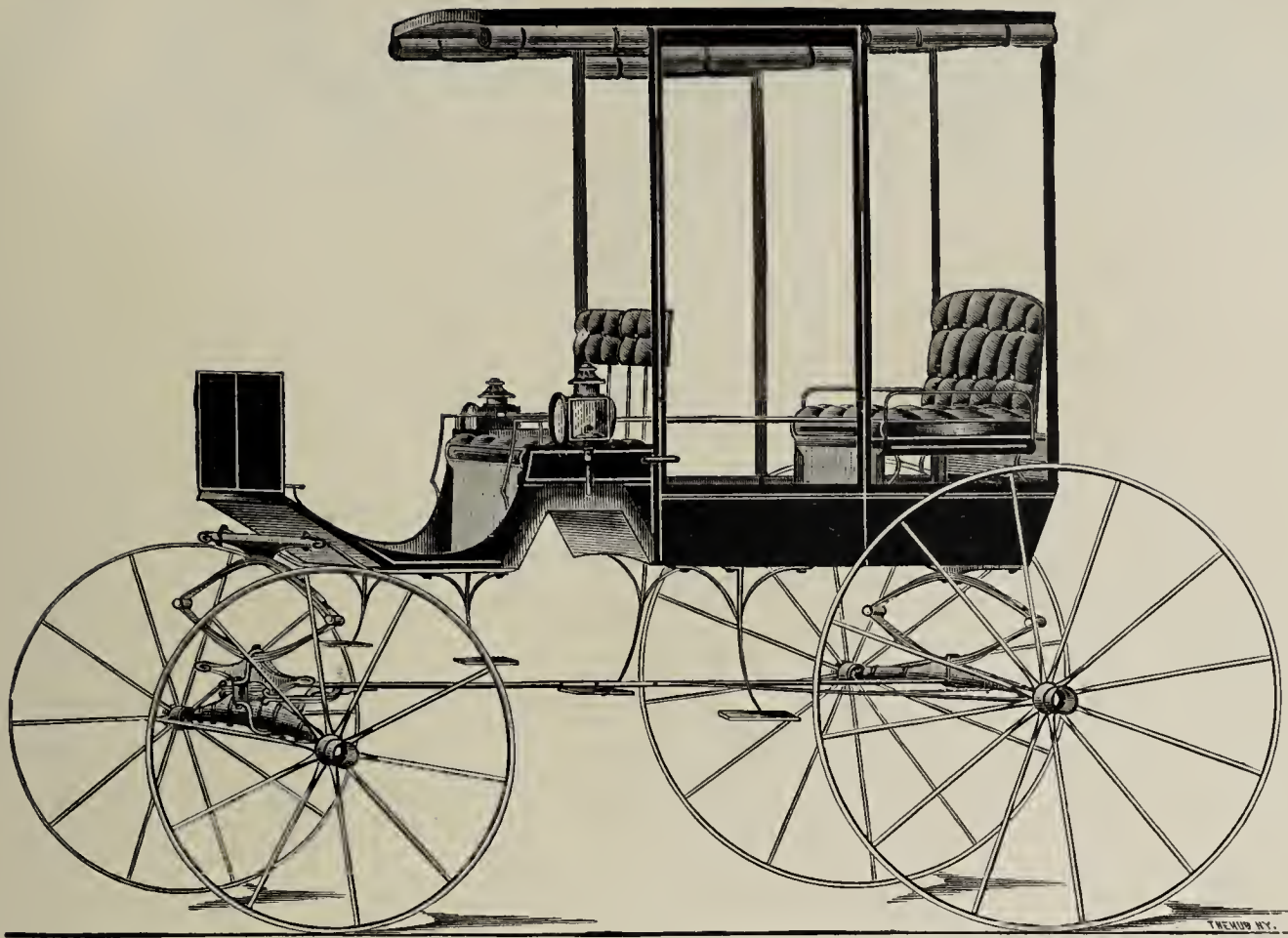


Plate No. 65. GARDNER STATION-WAGON, ON TWO ELLIPTIC SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 543.

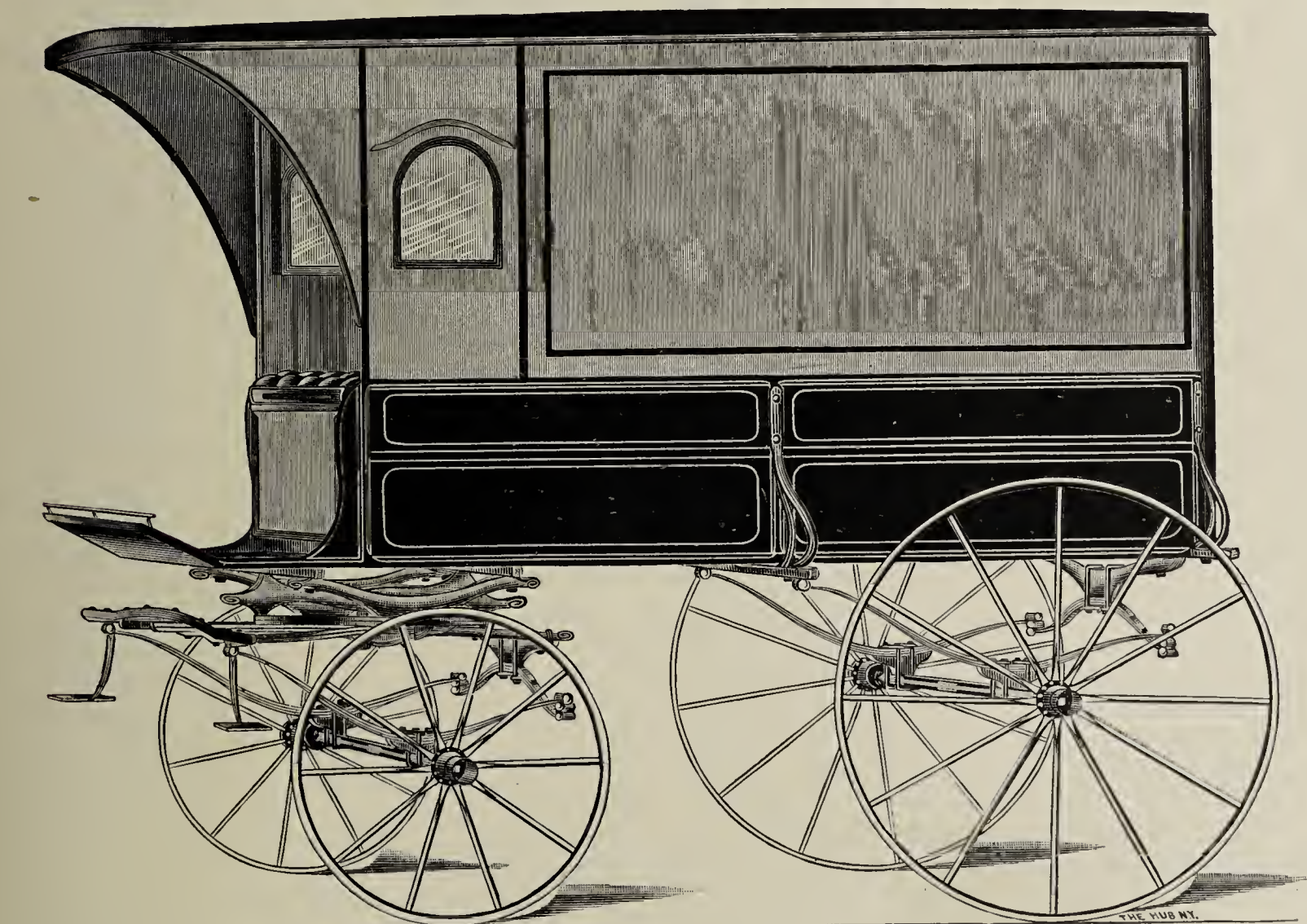


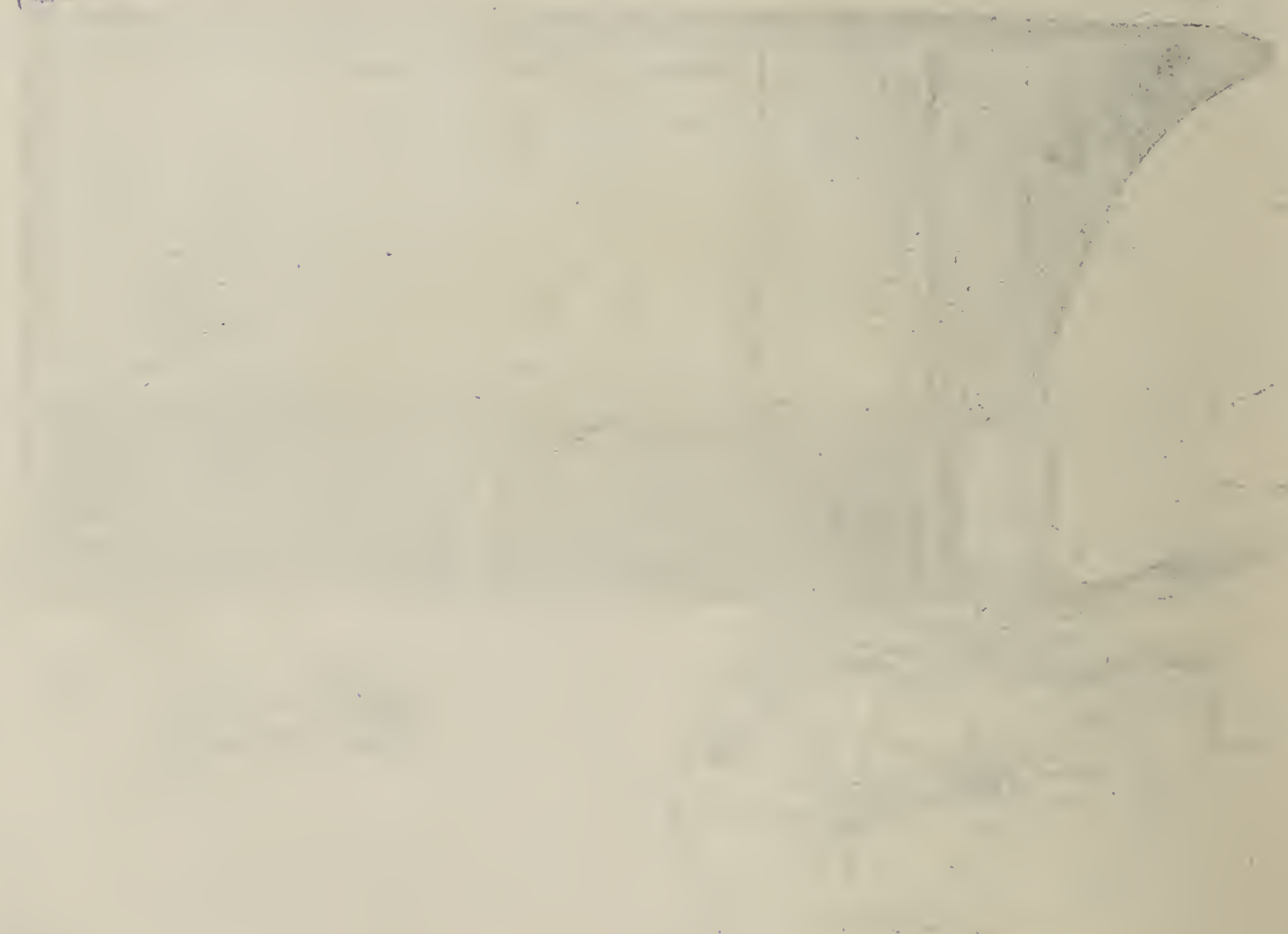
Plate No. 66. NEW-YORK PIE-WAGON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 544.



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The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

XXVI.

NEW-YORK, NOVEMBER 1, 1884.

No. 8.

THE HUB'S PORTRAIT GALLERY.

THE LATE EDWIN CLAPP, OF PITTSFIELD, MASS.

(See Portrait accompanying.)

Died, at his home in Pittsfield, Mass., on July 27th, Edwin Clapp, the vet-carriage-maker, aged 75 years."—*The Hub*, September 1, 1884.

EDWIN CLAPP was born in Pittsfield, Mass., on May 1st, 1809, being the oldest son of Jason Clapp, the celebrated carriage-maker, who had removed to this town from Northampton, Mass., in 1802, and engaged with his friend Lemuel Pomroy as a wheelwright. In 1810 Jason Clapp established a carriage factory of his own, and soon made it one of the leading, if not the very foremost, in America.

Pittsfield then being the midway station between Albany and the Connecticut River, Jason Clapp, with a partner in the latter city, soon led to his business the running of a line of stage-coaches. There was a rival line, and the competition was sharp; and, as he was, Edwin entered the contest eagerly, and greatly assisted his father's in winning the victory. In the meantime he was also turning the carriage-making business, in which he was conversed at the age of 21, when he was admitted by his father to partnership. This was in the year 1830, when the factory and stage-coaching were in great prosperity; and the latter continued with increasing success until the completion of the Western railroad ended it in 1842. The stages made in Clapp & Son's factory were the best upon any route in the country; and as early as 1825

we read that Gen. Lafayette came to town in "an elegant coach provided by Mr. Jason Clapp, and drawn by four spirited grays." The firm of Jason Clapp & Son continued to rise in reputation until they had no superior in the elegance and style of their work, and probably no equal in its faithfulness and strength. It became a proverb that when a man had bought one of Clapp's carriages, he might "settle down upon it for life." It was for this reason that, upon Franklin Pierce's election to the presidency, when his Democratic friends decided to present him a carriage, Jason Clapp & Son were selected to make it. This was in 1854, and the carriage is still running, although now degraded from its first high estate to a street hack.

After his father's death, Mr. Edwin Clapp continued to carry on the factory until, having accumulated a sufficient fortune, he leased it and retired from the business a few years ago. Since that time, however, he has been actively engaged in public services of many kinds, being, at the time of his death, a director in the Agricultural Bank, Berkshire County Savings Bank, and Pittsfield Coal Gas Company, and one of the trustees of the Berkshire Athenæum; and his decease is not only deeply regretted by a large number of friends and acquaintances—indeed, by all who knew him,—but it also leaves a gap in the ranks of Pittsfield's public-spirited workers, which will not readily be filled.

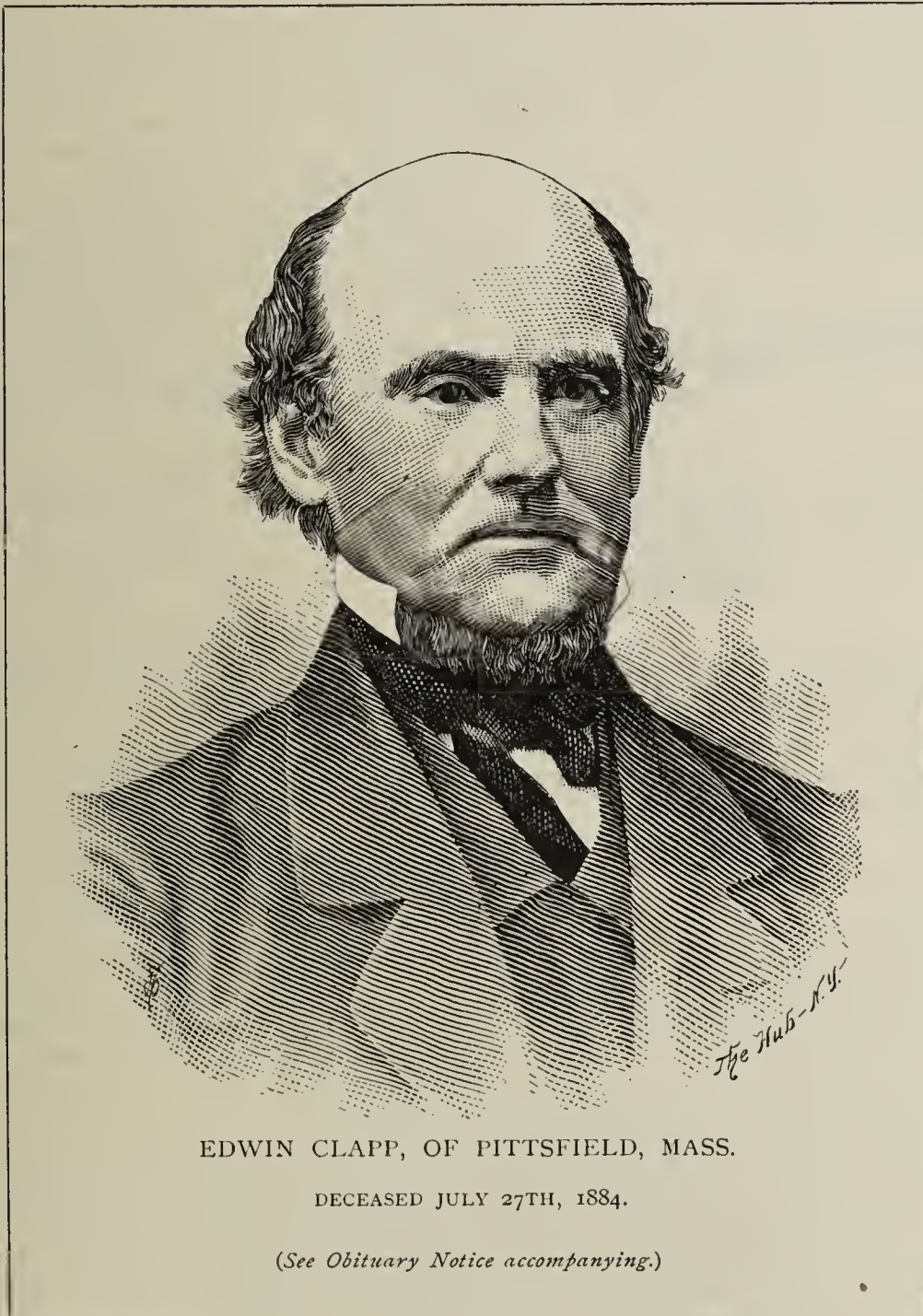
The business of carriage-making is continued as before, by Mr. Lyman Clapp Learned, the successor of Jason Clapp & Son.

THE N. Y. C. C'S CREST.

IN our "Paint-shop Department" this month, we present a reduced copy of the crest claimed by the New-York Cab Co. as their trade-mark, which proved a seed of discord many months ago, and has recently sprouted into a legal action.

In the Supreme Court, in this city, on Sept. 24th, Judge Lawrence granted the application of the New-York Cab Co., Limited, for an injunction restraining Daniel Mooney from using coupés made and painted in imitation of those of the said company. He finds, from the affidavits presented, that the defendant's coupés have a similarity to those of the plaintiffs, likely to deceive the general public; that they are painted and lettered as they are with intent to create the impression in the public mind that such cabs belong to the plaintiffs; that the imitation of color, name and device is calculated to mislead the public, and has in some instances misled

those desirous of hiring and using the plaintiffs' cabs. He further states the true doctrine in cases of this character to be, that no one should be permitted to so dress his goods or wares as to enable him to induce purchasers to believe that they are the goods of another. "By this I do not mean to say," he adds, "that the plaintiffs are entitled to any exclusive property in color or in words; but I am clearly of the opinion that they have so far established a trade-mark in the words and color and device, as they are combined and used upon their cabs, as to entitle them to call upon a court of equity for protection against imitations designed to mislead the public and to deprive the plaintiffs of their profits."



EDWIN CLAPP, OF PITTSFIELD, MASS.

DECEASED JULY 27TH, 1884.

(See Obituary Notice accompanying.)

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures* (*The Carriage Painter*).

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Élysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Altwall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.



DESCRIPTIONS OF COLORED PLATES.

EXTENSION-TOP PHAETON, WITH MEDALLION SEATS.

(See Colored Plate No. LII.)

OUR first Colored Plate this month represents a recent and popular design of Extension-top Phaeton from the repository of Messrs. A. S. Flandrau & Co., 372 Broome-street, this city, to whom our thanks are hereby tendered. Its salable qualities are amply shown by the numerous sales already effected.

As mentioned in a former number, this belongs to one of the few classes of vehicles which admit of numerous changes in outlines, and this is confirmed by an inspection of the numerous styles now on exhibition in the warerooms of the above-named firm, all of which show more or less differences in lines and construction. Some have bodies with straight sides, buggy seats, doors and wheel-house; others have swelled sides, doors, and similar seats and wheel-houses; while others again, with bodies of almost the same style, have no wheel-house. In fact, nearly every Extension-top Phaeton in the Broome-street collection has marked peculiarities, and an individuality of its own.

Each rocker of the body we illustrate consists of eight pieces. These are inclined and contracted, and covered with a thin panel on the outside, to hide the joints. Solid sides are used for both seats, and the moldings are worked on. A thin panel is used for the back of both panels and is put into a groove. The side panels are mitered into the back corner-pillar. For the rear seat, whose sides have considerable twist, three-inch whitewood will be necessary; while for the front seat, one-inch whitewood will answer, the sides being straight. The front seat projects 1½ in. over the rockers, and the rear seat, 2½ in. The extension of the molding below the rear seat is made of whitewood, and should

be made heavier toward the rocker to give a better surface for gluing and it is then lightened toward the outside. The finishing piece at the bottom is divided into two moldings, and ends in a scroll at the front. The projection over the outside of the rocker is about ¾ in.

Full backs are used for the front and rear seat. These backs are made of one-inch whitewood, and bent to suit the shape of the low back crosswise. They are carefully fitted and glued to the top of the back rail. Five dowels are inserted, for better security; and three strainers are then fitted to the inside of the rear panel, extending from the top of the back to the seat-frame. Fenders are placed backward in front, to prevent mud from being thrown into the interior of the body. The running-gear is light and tasteful, and good workmanship is required. The perch is made of bent timber, swept upward at the rear end.

Dimensions.—Width of rear seat on top, 43 in.; ditto bottom, 40 in.; ditto at the rear panel on top, 40 in.; ditto bottom, 31¼ in.; ditto from seat on top in front, 40 in.; ditto bottom, 36¼ in.; ditto at the rear panel on top, 40¾ in.; ditto bottom, 36¼ in. Width of rockers at the dash, 30½ in.; ditto bottom of front seat, 33 in.; ditto center of body, 31¾ in.; ditto at the bottom on the front of the rear seat, 35½ in.; and ditto at the back, 29½ in. Rocker-plates, 2 × ½ in., fastened with 1 in. Nos. 14 and 16 screws. Height of wheels: Front, 2 ft. 10 in.; and rear, 3 ft. 11 in., without the tire. Depth of rims, 1¼ in. Size of spokes, 1¼ in. Number of spokes, 12 and 14. Stagger of spokes, 1 in. Hubs: front, 4¾ in.; and rear, 4½ in. diameter. Front bands for front hubs, 2¾ in., and back, 3¼ in., inside diameter. Front bands for rear hubs, 2⅞ in.; and back, 3⅜ in., inside diameter. Length of front bands, 1¾ in. Length of hubs, 7 in. Tire, 1 × ⅜ in., round edge steel.

The front spring is elliptic, 36½ in. long, from out to out, with 8¾ in. opening over all; steel, 1½ in. Number of plates, five, namely: the first three No. 2, and the last two No. 3 steel. The hind springs are elliptic, 39½ in. long, from out to out, with 10½ in. opening over all. Width of steel, 1⅜ in. Number of plates, four, namely: The first two No. 2, and the last two No. 3 steel. Holes apart on the top half, 3¼ in. Size of holes, ⅝ in. The bottom half is clipped to the axle. Axles, 1½ in. Track, 56 in., from out to out.

Finish.—Painting of the body, rockers and moldings, black; side panels, dark green; and running-gear, dark green, with two heavy round lines of carmine. Trimming, green cloth throughout. The backs and cushions are laid off in medium-size squares. The front face of the cushion is bound with patent leather. The falls have one raiser around the edge. Carpet, plain green. Mountings, silver.

THE LONG-BRANCH BEACH CART.

(See Colored Plate No. LIII, by Gray-Parker.)

We have the pleasure of presenting, in this number, two contributions from the pen of Mr. Gray-Parker, the second of which illustrates a drive on the beach, in what we may be permitted to call "the Long-Branch Beach Cart."

The vehicle represented is a two-wheeler of the English dog-cart pattern, and its dimensions are such as to give it a somewhat heavy appearance, characteristic of English style. This cart may be used with either one or two seats, as may be preferred. The moldings are heavy, as are now fashionable in England, judging from the latest sketches sent to us by English correspondents. The best results will be attained by putting the side panels into a groove, which perhaps causes a little more work but will prove more satisfactory in the end. The center moldings are glued and nailed on. The sides should receive a swell in the height of the panel, to conform with the back view. The body is hung on platform springs, and the shafts are secured in the same manner as those of the Stanhope Gig.

Dimensions.—Width of body on top, 41 in.; and at bottom, 36 in. Height of wheels, 4 ft. 2 in. Depth of rims, 1⅞ in. Size of spokes, 1 in. Number of spokes, 14. Stagger of spokes, ⅜ in. Hubs, 6½ in. diameter. Front bands, 3¾ in.; and back, 5⅜ in., inside diameter. Length of front bands, 2¼ in. Length of hubs, 8 in. Tire, 1½ × ⅜ in., round edge steel.

The springs are platform. The side-springs are 42 in. long, from out to out, with 5 in. set over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. The cross springs are 40¼ in., from center to center, with 4½ in. set over all. Number of plates, four, namely: the first No. 2, and next two No. 3, and the last No. 4 steel. Axles, 1¼ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of body panels, dark green; and moldings black, striped with a fine line of carmine. Running-gear, carmine, with a broad stripe and two medium lines of black. Trimming, green cloth. Plain trimming will be found preferable. Carpet, green, with black figure. Mountings, silver.

DESCRIPTIONS OF FASHION PLATES.

LADIES' OPEN PARK PHAETON, WITH RUMBLE.

(See Fashion Plate No. 59, and also Working Drawing and Mechanical Description on page 545.)

SEVERAL changes will be observable in this design, as compared with others of the same class published previously, and the principal of these is the introduction of a wheel-house, and the application of a stanhope-pillar, which latter adds materially to its appearance.

A phaeton of this class, if suspended on four elliptic springs, will always present a more elegant appearance when there is a rumble attached to it. Such rumbles, in every case, are made detachable. Two stays are welded on the bottom plate of the extended back bottom sill, forming the pump-handle. Two stays are then made for each side. The end is bolted to the lap forged to the bottom plate, as mentioned above, and the other end is bolted to the bottom frame of the rumble. The rumble may be made either of framework paneled over, or of four uprights bolted to the top and bottom frame of the rumble. The latter gives the neatest and most suitable finish for a light vehicle of this description. The lower section of the sides, or the recess panel, may be painted in imitation of cane-work, which will form a fine contrast with the upper section. This, however, is a matter of taste.

The running-gear is made in the usual way, having two straight wooden axles. The futchels are made of iron, mortised into the bottom bed, and kept upward considerably, to bring the shafts as far as possible to the proper height from the ground. The rear axle is cranked, to give sufficient space for the springs.

The dimensions of the body are given in connection with the working drawing which follows in our drafting department, page —. The other principal dimensions are as follow :

Height of front wheels, 2 ft. 4 in., and hind, 3 ft. 4 in., without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Hubs, front, $4\frac{1}{2}$ in., and rear, $4\frac{5}{8}$ in. diameter. Diameter of front bands for front hubs, $2\frac{7}{8}$ in., and back bands, $3\frac{1}{2}$ in., inside. Front bands for the rear hubs, 3 in., and back, $3\frac{1}{2}$ in., inside diameter. Length of front bands, $1\frac{3}{4}$ in. Length of back bands, 7 in. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front springs are elliptic, 36 in. long, from out to out, with $7\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, the second No. 3, and the last two No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The hind springs are elliptic, 36 in. long, from out to out, with 7 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{8}$ in., Collinge patent. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the upper panel of body, dark green. Lower part and moldings, black. If preferred, paint the lower section of the sides in imitation of cane-work, which will make a good finish. Running-gear, green, a shade lighter than the body, with one medium stripe of black, and two medium lines of yellow at a distance. Trimming, green catskin for the back and cushion top. The pipe pattern is used for the back, and squares for the cushion top. The fall and side quarters are made of green cloth. Carpet, green, with black figures. Mountings, silver.

STIVERS' STANHOPE PHAETON.

(See Fashion Plate No. 60.)

IN outlines and general character, the Stanhope Phaeton resembles in many respects the T-cart, the main differences between the two vehicles being that the front seat of a Stanhope Phaeton is paneled and supplied with a top or hood, while the T-cart has a stick seat and no top. The accompanying design represents one of the latest patterns built by Mr. J. M. Stivers, of 31st-street, in this city, recently exhibited at his warehouses on Fifth-ave.; and, on request, permission to make it public was kindly granted.

It shows no marked changes in outline, but all the parts are in perfect harmony,—always an essential feature, and particularly desirable on a vehicle of this description. If, for instance, the bevel of the stanhope-pillar is not in harmony with the back of the front seat, or the flare of the rear corner-pillar of the body is ill-proportioned to that of the stanhope-pillar, the effect of the whole would lose some of its character. The general rule, in the case of Stanhope Phaetons, is to make the wheels heavy, which is done more to acquiesce to the demands of fashion than from any real necessities of the case; but the dictate of style is correct in this case, where a light wheel would certainly rob the vehicle of its typical character. The gearing is made in proportion to the rest. We would state here that the dimensions of the hubs, spokes and rims,

as shown in our drawing, are diminished from the true scale, as is customary on nearly all half-inch-scale drawings, for the reason that they would otherwise appear heavier in proportion than such parts do in the finished vehicle, owing to the lightening effects of the paint and varnish.

The construction of this body differs very little from others of similar style. The sides are straight lengthwise, but are rounded a trifle in the height of the panel, which can easily be accomplished when the body is cleaned off. The stanhope-pillar is let into the bottom sill from the outside, and is secured by screws inserted from the inside of the bottom sill. The insertion of screws from the outside is not to be commended, as the screw-heads have to be plugged, and are very apt to show. The stanhope-pillar projects about $\frac{5}{8}$ in. outside of the body at the bottom. A piece of ash is glued against the bottom sill in front, and is fitted against the stanhope-pillar, the joint forming a miter. The seat is paneled, and the panel is put into a groove all around. The sticks, as shown, are turned and sawed in halves, and then glued against the panel. In most instances, the hood or top is made to shift. The vehicle can then be used without a top, if desired.

Dimensions.—Width of body on top, $32\frac{1}{2}$ in.; ditto bottom, $30\frac{1}{2}$ in.; ditto seat on top, $44\frac{1}{2}$ in.; and ditto at the bottom, 39 in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. Nos. 18, 16, 14 screws. Height of wheels: front, 2 ft. 10 in., and rear, 3 ft. 6 in., without the tire. Depth of rims, $1\frac{3}{4}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{3}{8}$ in. Front hubs, $6\frac{1}{4}$ in., and rear, $6\frac{1}{2}$ in. diameter. Front bands for front hubs, $4\frac{3}{4}$ in., and back, $5\frac{1}{8}$ in., inside diameter. Front bands for rear hubs, 5 in., and back, $5\frac{3}{8}$ in., inside diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{2} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 41 in. long, from out to out, with $8\frac{1}{4}$ in. opening over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Holes apart on top, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in.

The rear springs are elliptic, 41 in. long, from out to out, with $9\frac{1}{4}$ in. opening over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{4}$ in., Collinge patent. Track, 4 ft. 4 in., from out to out.

Finish.—Painting of the body and moldings, black; and seat and stanhope-pillar, dark lake. The sticks and moldings are striped with a fine line of carmine. Running-gear, dark lake, with a broad stripe of carmine and two fine lines of the same at a distance. Trimming, maroon cloth. A roll extends around the top edge of the upper back, with two rows of biscuits reaching to the top of the top seat-rail. Another narrower roll is placed below the top seat-rail, and two rows of pipes extend from there to the bottom of the seat. The carpet should match the color of the trimming. Mountings, silver.

DERBY WAGON, WITH REVERSIBLE REAR SEAT.

(See Fashion Plate No. 61.)

THE sketch and principal measurements of this attractive design were kindly furnished to us by Mr. A. N. Parry, of Amesbury, Mass., for which favor he will please accept our thanks. The vehicle represented has met with great favor of late, and Mr. Parry has effected numerous sales.

To make a vehicle of this class look best, the running-gear should be painted in a bright color, and the body in some dark color, with little or no striping. The body shown is hung on J. B. Brewster springs, hangs low, yet has wheels of good height. The rear seat can be reversed, so that the occupants may all face to the front, or sit back to back. To permit easy ingress to the rear seat, if all passengers sit one way, the front seat and lazy-back are both divided, the lazy-back turning simultaneously with the seat, thus allowing an unobstructed passage to the rear seat.

The construction of the body is very simple, the sides being straight lengthwise, but flaring out on top crosswise. Four uprights are framed on each side, and a bar lengthwise, 1 in. from the top edge of the panel. This is for the seats to rest on. The uprights are made light, and rounded off on the inside. They can be either mortised into the bottom sills or lapped. We prefer the last-named method, as the least shrinkage in the bottom sill would be apt to open the joints, and very likely cause the panel to split. The rear cross-bar is made strong, and the tail-gate is hinged to it. The toe-board bar, and two bars between the toe and rear bar, are sufficient for the bottom. The vertical slats are glued to the body; and, for better security, three light bolts are inserted through the slats and uprights inside of the panel. In some instances the vertical slats are of iron. Above the panel the slats are also fastened together by a bolt. Rivets or screws might be substituted in the place of light bolts, but this is not advisable. Wooden wings are used, for the protection of occupants from mud. If preferred, wings consisting of iron

frames covered with leather may be substituted for wooden wings. The running-gear should not be made too heavy, and this is easily prevented by the use of good material. The steps in front are bolted under the body, while the rear step is fastened under the hind axle.

Dimensions.—Width of body on top, 35 in.; ditto bottom, 30 in., from out to out. Height of front wheels, 3 ft. 7 in.; and rear, 3 ft. 11 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 14. Stagger of spokes, $\frac{3}{16}$ in. Hubs, $4\frac{1}{8}$ in. diameter. Front bands, $2\frac{5}{8}$ in., and back, $3\frac{1}{8}$ in., inside diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{16}$ in., round edge steel.

The front end-springs are 34 in. long between the outside holes of the side-bar clips, with $2\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next No. 3, and the last two No. 4 steel. The rear end-spring is of the same length as the front one, with $2\frac{1}{2}$ in. set. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 2, the next two No. 3, and the last two No. 4 steel. The front body spring is $34\frac{1}{4}$ in. long, from out to out, with $3\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. The rear body spring is of the same length as the front one, with $3\frac{3}{4}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 2, the next three No. 3, and the last No. 4 steel. Axles, 1 in. steel. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, black, with no striping. Running-gear, English vermilion, dark shade, striped with two heavy lines of black. Trimming, English drab corduroy. The cushion tops and backs are all of a plain pattern. One raiser is introduced around the falls, made of the same material. The carpet should match the color of the other material. Mountings, silver.

BREWSTER EIGHT-SPRING VICTORIA.

(See Fashion Plate No. 62.)

THIS Fashion Plate represents one of the most popular styles of Eight-spring Victorias, as manufactured by the well-known house of J. B. Brewster & Co., of 25th-st., in this city, who have kindly consented to its publication.

Double-suspension vehicles are steadily increasing in popularity in our leading cities, in spite of the necessarily enhanced cost; but the demand thus far is chiefly confined to those of medium size and weight, such as Victorias, Cabriolets, etc. Not many years ago, the two houses, Brewster & Co., of Broome-st., and J. B. Brewster, of 25th-st., in this city, were almost the only ones able to sell double-suspension carriages; but at the present time they can be found in nearly every carriage repository of note in this and our other leading cities.

Messrs. J. B. Brewster & Co. employ, on the majority of their Victorias, only one panel on each side. The sides are made of considerable depth, giving the body a rich appearance. Several specimens, however, may be seen in their repositories where each side is divided into two sections, the lower one being left open. These latter are chiefly hung on elliptic or elliptic and platform springs.

To make such a body as this look well, special care must be taken in drafting the side elevation, and in laying out the cant and turn-under. It also demands considerable skill on the part of the body-maker. It has frequently happened that such bodies, when built after the selfsame draft but by different men, have proved quite different in appearance when completed. One was the true representation of the draft, while the other, although preserving to a certain extent the same general lines, showed ignorance of the principles of laying off the different pieces and was lacking in finish. It is necessary to exercise great care in dressing and laying off the different pieces. Due attention to all the above conditions will alone produce the perfect result.

Two patterns are necessary for the front wing, *i. e.*, one from which to make the draft, and the other to work by. Bent timber is now used almost universally for the bottomsides.

At the time we took our sketch and measurements of this vehicle, the running-gear was still "in the white," having received a coat of oil only, while the body was trimmed and advanced far enough in painting to receive the finishing coat of varnish. The unpainted condition of the former gave us an opportunity to examine both the wood and ironwork, and they certainly showed excellent workmanship throughout. The curves of the different stays were especially graceful, and the iron was fitted with unusual accuracy to the wood parts.

Dimensions.—Width of body on top of arm-rail, in the middle, 49 in.; ditto back, 42 in.; ditto front, $37\frac{1}{4}$ in.; ditto toe-board, 31 in., and ditto driver's-seat, 35 in. Turn-under, 6 in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Height of front wheels, 2 ft. 10 in.; and rear, 3 ft. 7 in., without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{3}{4}$ in. Number of spokes, 10 and 12. No stagger.

The front hubs are 6 in., and the rear, $6\frac{1}{8}$ in. diameter. Front bands for front hubs, $3\frac{7}{8}$ in.; and back, $4\frac{3}{4}$ in., inside diameter. Front bands for rear hubs, 4 in.; and back bands, $4\frac{7}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{3}{8} \times \frac{3}{8}$ in., square edge.

The half-elliptic springs in front are 36 in. long, from out to out, with 3 in. set over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, four, all No. 3 steel. The hind half-elliptic spring is 38 in. long, from out to out, with 3 in. set over all. Width of steel, $1\frac{5}{8}$ in. Number of plates, four, all No. 3 steel. Width of steel for the front C-springs, $1\frac{5}{8}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last two No. 4 steel. Width of steel for the hind C-springs, 1 in. Number of plates, six, namely: the first two No. 2, the next two No. 3, and the last two No. 4 steel. Axles, $1\frac{3}{8}$ in. Collinge pattern. Track: front, 4 ft. 5 in.; and rear, 4 ft. 7 in., from out to out.

Finish.—Painting of the body-panels, dark green; and molding black, with no striping. Running-gear, dark green, with a broad stripe of black and two fine lines of light green at a distance. Trimming, dark green goatskin for the back and cushion top; and green cloth for the rest of the trimming. The back is laid off with one row of squares on top, and a row of piping below. The cushion top is laid off in square. Carpet, green, with light green figures. Mountings, silver.

MANVILLE EIGHT-SPRING BROUGHAM.

(See Fashion Plate No. 63.)

There is a steadily growing demand for conveyances suspended on eight springs, if we are to judge by the increasing numbers of these seen in process of construction, which would seem the best kind of test; and the vehicle shown in the accompanying fashion plate represents one of the latest styles, as built by the enterprising firm of B. Manville & Co. in New-Haven, to whom we are much indebted for their kindness in permitting us to take a sketch and measurements from it.

It is hardly possible to produce a brougham having entirely new lines, but continual slight changes are observable in the shape of the coupé-pillar, in that part of the rear standing-pillar extending below the bottomside in the shape of the boot, and occasionally in the rear corner-pillar. In many instances the alterations in the outlines of new-style broughams are observable only to the trained eye of the connoisseur of carriages, and the variations in the design now before us are not very marked. A change will be noticed, however, in the shape of the coupé-pillar. The short sweep at the bottom end, which has been in style for several seasons past, is here omitted, and a more gradual sweep is adopted. The extension of the rear standing-pillar below the bottomside has also undergone a slight change, being almost straight at the back face. The rear corner-pillar has an easy sweep from the top rail to the bottomside. At the arm-rail the short curve near the corner-pillar is also dispensed with, and a more gradual sweep is introduced. Great care should be taken, in building such a body, to avoid all joints on the outside; and, with this end in view, the lower panel of the rear quarter extends from the arm-rail to the bottom of the standing-pillar, and is put into a groove all round. The grain of this panel runs parallel with those of the hinge-pillar. The upper quarter panel is rabbeted into the arm-rail and standing-pillar, and the joint is covered with a light half-round molding.

The doors are made to accommodate both glass-frames and stable shutters. The moldings are all worked on the upper section of the door, while brass moldings are applied on the lower part as usual.

The running-gear of all such C-spring carriages requires considerable skill and good taste on the part of the blacksmith, the most difficult part of the work being the iron perch. To get the proper shape and length of the perch, it is necessary to make either a draft or pattern, but we prefer the former, as a pattern is more apt to spring. The wooden beds of the front gearing are straight, but the kingbolt is placed about 5 in. in front of the center of the axle. A boss is forged on the perch at the place where the king-bolt is to be located. A stay is bolted across the futchels, having a boss the same diameter as the one at the perch. A hole is drilled into the upper boss, forming a socket for the reception of the lower boss, which is turned down and forms a shoulder of about $\frac{1}{4}$ in. all around. The perch is bolted on top of the wooden beds by a plate, forming a T. The bottom bed in front is let in level with the bottom of the dummy, and the same is done with the bed on the hind gear. Two wooden beds are used for the hind gear, and the perch is bolted on top of the beds in the same manner as at the front gear.

Dimensions.—Width of body at the hinge-pillar, 52 in.; ditto at the coupé-pillar, 47 in.; ditto back, 42 in.; ditto outside of rocker at the coupé-pillar, 31 in.; and ditto at the dash, 28 in. Turn-under, $2\frac{1}{4}$ in. Rocker-plates, $3 \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Height of front wheels, 2 ft. 11 $\frac{1}{2}$ in., and rear, 3 ft. 8 $\frac{1}{2}$ in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{5}{8}$ in. Number of spokes, 10.

and 12. No stagger. Front hubs, $6\frac{1}{4}$ in., and rear, $6\frac{1}{2}$ in. diameter. Front bands for front hubs, $4\frac{1}{4}$ in.; and back, $5\frac{1}{8}$ in., inside diameter. Front bands for rear hubs, $4\frac{3}{8}$ in., and back, $5\frac{1}{4}$ in., inside diameter. Length of front bands, $2\frac{1}{8}$ in. Length of hubs, 8 in. Tire, $1\frac{3}{8} \times 7\frac{1}{8}$ in., round edge steel.

The half-elliptic springs in front are 35 in. long, from out to out, with $2\frac{1}{2}$ in. set over all. Width of steel, 2 in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. The rear half-elliptic spring is 36 in. long, from out to out. All other measurements are similar to those above named for the front springs.

The dimensions of the C-springs in front are as follow: Width of steel, 2 in. Number of plates, six, namely: the first No. 1, the next two No. 2, the following two No. 3, and the last No. 4 steel. The same measurements will answer for the rear C-springs.

Axles: front, $1\frac{5}{8}$ in., and rear, $1\frac{3}{8}$ in., Collinge patent. Track: front, 4 ft. $3\frac{1}{2}$ in., and rear, 4 ft. $8\frac{1}{2}$ in., from out to out.

Finish.—Painting of the lower quarters, doors and back panel, dark green; and upper quarters, back, boot panels and moldings, black. The moldings are striped with a fine line of light green. Running-gear, dark green, with a broad stripe and two fine lines of black at a distance. Trimming, green morocco for the lower back, lower quarters and cushions; and cloth for the upper quarters, back, head-lining, doors, fall and driver's-seat. The squab-work is laid off in diamonds. Silk broad-lace is used throughout. Carpet, green, with black figures. Mountings, silver.

KEAN & LINES FALLING-FRONT COACH.

(See Fashion Plate No. 64.)

Our sketch, measurements and particulars respecting this design were taken, with permission, from a newly-finished coach shown to us in the warerooms of Messrs. Kean & Lines, of New-Haven, Conn. Most of the work manufactured by this firm belongs to the class termed "heavy work," including landaus, landaulets, coaches, etc., though a few cabriolets and six-passenger rockaways are built occasionally to order. This design shows one of the latest styles of coaches and may be looked upon as representative of the prevailing fashion in outlines.

The front is made to fall, similar to the front of a glass-front landau, and it is provided with a spiral spring let into the front corner-pillar, and covered with a thin iron plate, fastened with round-headed or gun screws. These springs are of great assistance in raising the top when down, as a slight touch with the finger starts the top, and the power of the spring is sufficient to raise it to its proper place. This spring is patented by Messrs. Kean & Lines.

As will be noticed on the drawing, each side of the boot is made in two parts, and the upper section is hinged to the lower part in such a manner, that, when turned down, the outside of the boot section will fall below the joint, thus preventing the top, when lowered, from bruising the painted surface of the boot. The front pillar of the boot is made of bent wood, and the molding is worked on.

Throughout the construction of the body, the greatest care is requisite to combine lightness with strength. On the rear quarters bent wood is used for the bottom sides and lower part of the corner-pillars. The upper part of each pillar is then spliced to the bottomside. This method is now employed by the best builders in New-Haven and elsewhere, and merits general introduction. The question why the employment of bent wood at the corner-pillars is preferable to the old method of framing the corner-pillar into the bottomside, has been so often ventilated in *The Hub* that we abstain from repeating the arguments in its favor.

On a former visit to Messrs. Kean & Lines's factory, Mr. Lines called our attention to a landau standing in the smith-shop. The body was built before bent wood for corner-pillars was so generally adopted as at present. To prevent the opening of the joint, the body-loop formed a shoulder, fitting close against the back corner-pillar, the shoulder or offset being about 1 in. in height. This device fulfilled its functions admirably, and Mr. Lines assured us that it had withstood four years of hard service, and the joints had not even stirred.

The front of the body is constructed to fold after the Lohner system, and great care has to be exercised in placing the hinges at the right places to insure the proper falling of the top. In Messrs. Kean & Lines's factory this responsibility rests in a great measure with the draftsman and foreman, which position has been filled by Mr. Lester for a number of years past.

Steel plates are used exclusively on all such bodies. We recently expressed apprehensions regarding the propriety of using steel rocker-plates for landaus, etc., but we have been assured by Mr. Lines that, thus far, they have experienced no trouble from this source, but he states that they had an excellent smith who understood his business perfectly.

The ironwork of the coach represented is simple, but shows unusual care in the fitting of the different parts to the wood, and it is finished

off in a first-class manner. Close futchels and two wooden beds, bent about 3 in. forward, are used for the front carriage-part. A stiff draw-bar is dispensed with in favor of a sway-bar. No leather braces are used in attaching the whiffletree to the sway-bar, but the whiffletrees are connected by a device now in general use for nearly all heavy work intended for livery use. This device is of iron, forming a prong in front of the sway-bar for the reception of the whiffletree, and a bolt at the back end which goes through the sway-bar and turns in the same.

Dimensions.—Width of body at the hinge-pillar, 52 in.; ditto at the lock-pillar, 52 in.; ditto at the back, 42 in.; ditto front, $41\frac{1}{2}$ in.; and at the toe-board, $32\frac{1}{2}$ in. Turn-under, $3\frac{1}{2}$ in. Rocker-plates, $3\frac{3}{4} \times \frac{3}{8}$ in., steel, fastened with $1\frac{3}{4}$ in. No. 20 screws. Height of wheels: front, 3 ft. 2 in.; and rear, 3 ft. 10 in. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $5\frac{1}{2}$ in. diameter. Front bands, $4\frac{1}{4}$ in. inside; and back bands, $4\frac{1}{2}$ in., inside diameter. Length of front bands, $2\frac{1}{8}$ in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{4} \times 1\frac{7}{8}$ in., round edge steel.

The front springs are elliptic, 39 in. long, from out to out, with $11\frac{1}{4}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: The first No. 1, the next two No. 2, and last two No. 3 steel, clipped top and bottom.

The rear springs are platform. The side-springs are 42 in. long, from out to out, with $9\frac{3}{4}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: The first two No. 2, the next two No. 3, and the last No. 4 steel. The cross-spring is $39\frac{1}{2}$ in. long, from center to center, with $5\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: The first three No. 2, and the last two No. 3 steel. Axles, $1\frac{5}{8}$ in. Track, 4 ft. 10 in., from out to out.

Finish.—Painting of the lower quarters, doors and back panel, dark green; and moldings, upper quarters, and back and boot panels, black. The moldings are striped with a fine line of light green. Running-gear, the same shade of green as the lower body panels, with one medium stripe and two fine lines of light green. Trimming, green cloth throughout. The backs are laid off in pipes, and the diamond pattern is used for the cushion top. No falls are used. The lining board under the seat is covered with cloth and tufted. The upper quarters and back are squabbed, and laid off in diamonds. The doors are edged with broad-lace, and finished with five tufts between the lace. The pull-to handles are of ivory. A looking-glass is placed on each side in the upper rear quarters, and covered by a flap. A card-case and a case for the reception of a small mirror placed on the near-side door, complete the principal items of the interior furnishing. The carpet matches the color of the trimming. Mountings, silver.

GARDNER STATION-WAGON.

(See Fashion Plate No. 65.)

MR. R. H. LEE, of Philadelphia, foreman in Mr. W. D. Gardner's smith-shop, has favored us with a sketch and measurements of this attractive and useful light vehicle, which can be utilized for various purposes, the principal one, as our title indicates, being the conveyance of passengers and baggage to and from railway stations. A tail-gate is provided on the back of the body to hold small trunks and packages.

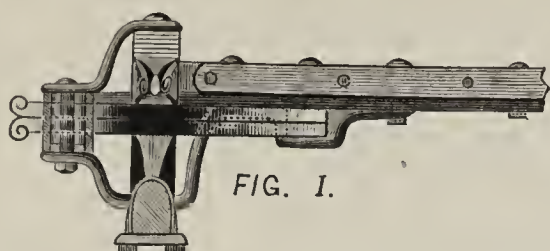
This design will also answer admirably for marketing purposes. The rear seat, which is movable, may then be taken out to give room for baskets and sundry articles. It is also equally adapted for use as a summer family carriage, being light and sufficiently roomy, so that four grown persons may be comfortably seated. If desired, a child's-seat, about 6 in. wide, may be fastened on the back bar of the front seat. This seat can be made detachable when not in use.

The construction of the body is very simple. The body is straight on the sides lengthwise, but the sides are flared out considerably. The rockers will have to be dressed by the bevel, with the exception of the toe-board rocker, which is to be framed square. The rear corner-pillars are plated, which is also advisable for the hinge-pillars. The rear panel of the wheel-house is swept backward $1\frac{1}{2}$ in., to afford room for the wheel to turn. The rear seat is plain, and consists of a seat-frame only, supported by iron stays bolted to a pair of cleats at the bottom, the cleats resting on a side-rail glued to the side-panel and let into the pillar. An iron cross-stay is bolted to the cleats, and in the center to the seat-frame, which further adds to the strength of the seat.

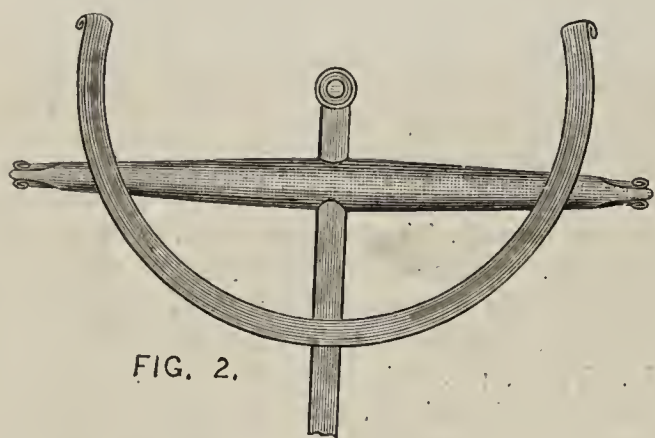
Attention is called to the kingbolt, which is placed 3 in. in front of the axle-bed. In order to explain how to construct such a kingbolt so that it shall prove strong and durable, we introduce below three special cuts: Fig. 1, showing the side view; Fig. 2, the bottom view of the top fifth-wheel, and Fig. 3, the top view of the bottom fifth-wheel.

Fig. 1 shows the arrangement complete, but cut in half to show the interior to better advantage, together with the transom plate of the axle-bed, head-block, and the extension plate in front of the axle-bed and head-block, which latter forms a T. At the extreme front of this extended plate, a boss is formed at the top and bottom, the bottom one

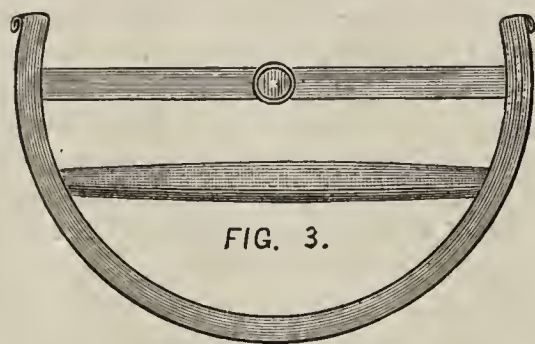
having a hole drilled in it forming a socket, while the top one is shouldered off, the smaller part fitting into the socket of the lower boss. A half-inch hole is then drilled through the hole, for the reception of the kingbolt. One stay extending from the bottom of the axle, and another



from the top of the spring, add greatly to the support of the extension for the kingbolt. The displacing of the kingbolt in front of the axle-bed is necessitated by the short distance from the dash to the rear part of the wheel-house.



Dimensions.—Width of body on top, 42 in.; and bottom, 38 in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{1}{2}$ in. Nos. 14 and 16 screws. Height of wheels: front, 3 ft., and rear 3 ft. 9 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 12 and 14.



Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{1}{4}$ in. Front bands, $2\frac{3}{4}$ in., and back, $3\frac{1}{4}$ in., inside diameter. Length of front bands, $1\frac{1}{2}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{8}$ in., round edge steel. The front axle-bed is swept upward $1\frac{1}{2}$ in., and the rear axle-bed $\frac{1}{2}$ in.

The front spring is elliptic, 35 in. long, from out to out, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 3, the next two No. 2, and the last No. 1 steel. The rear spring is elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 3, the next two No. 2, the fourth No. 3, and the last No. 1 steel. Axles, $1\frac{1}{8}$ in., of Dalzell make. Track, 5 ft., from out to out.

Finish.—Painting of the body, dark green; and running-gear, carmine, with two narrow stripes of black. Trimming, green cloth or leather. The back and cushion tops are laid off in biscuits. One raiser is applied around the edge of the fall. Carpet, green, with black figures. Mountings, silver.

We would add that we are informed by our correspondent, Mr. Lee, that this vehicle has met with such favor that one woodworker in Mr. Gardner's factory has been kept constantly employed on bodies of this style for some time past. We hope it will procure similar steady jobs to woodworkers in other shops.

NEW-YORK PIE-WAGON.

(See Fashion Plate No. 66.)

In former years the baking of pies was mainly confined to individual households, though various bakeries made it a minor part of their business; but, for the past ten or twelve years, several large companies in this city have devoted their energies exclusively to this specialty. The largest company is known as the New-York Pie-Baking Co., and is located at No. 82 Sullivan-street. Their business is extensive, and numerous wagons are employed for distributing their product throughout the city. The total number of hands employed by this company is about 120.

The wagons used by the company above-named differ somewhat from our design. In their vehicles, which were built to order by the Abbot-

Downing Co., of Concord, N. H., the lower part of the body resembles a regular express wagon, and duck is used for the upper part of the body. Four pie closets are arranged on either side, and each one is provided with a door. All these doors on a side can be opened and closed simultaneously, by pulling a knob at the back of the body. The box under the driver's-seat is also utilized for the storage of pies. Cleats are fastened on the sides of the closets, and thin pine boards are fastened to these cleats for securing the pie plates. Such a wagon accommodates at least 700 pies.

In our design the sides are paneled up, and rabbeted into the top-rails and rear corner-pillars, and the joints covered by a molding. The rear corner-pillars are framed into the bottom sills, and the corners of the pillars are rounded off. The side panels are each made of two pieces, and the connecting joint covered by a molding. The front end of the body is finished off by an imitation stanhope-pillar, made of whitewood. The interior of the body is divided into three spaces, the center space being used as a passage-way to give access to the different compartments. Four uprights are framed on each side, in addition to the corner-pillar and two horizontal rails at the lower part of the body. The entire body is paneled up on the inside. The glasses on the sides at the front are made to drop. Each top side panel is made of two lengths, the joint coming in the center of the molding back of the side light. To better secure the extreme front end, a piece of ash is let into the pillar and the top rail. The panel is then glued on, and finished with a molding on the outside.

Our arrangement for placing the pies in the inside of the body also shows a variation from that followed by the New-York Pie-Baking Co., as described above. A passage-way leads from the rear to the front, and each side is divided into three or four different compartments, the divisions being formed by $\frac{1}{2}$ -inch whitewood panels. Cleats, made of ash, $\frac{7}{8} \times \frac{5}{8}$ in., are screwed to these boards. A tray is provided for each compartment, which slides in and out. Whenever required, the tray is drawn out and afterward returned to the proper place. Care is required to allow even spaces between the cleats and partitions. Good materials and good workmanship are requisite throughout to make such wagons satisfactory.

Dimensions.—The dimensions of the design we illustrate are briefly these. Width of body over all, 46 in. Height of wheels: front, 3 ft. 2 in.; and rear, 4 ft. 4 in., without tire. Depth of rims, $2\frac{3}{8}$ in. Size of spokes, 2 in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, 7 in. diameter. Front bands, $5\frac{1}{2}$ in., and back, 6 in., outside diameter. Length of hubs, 9 in. Length of front bands, 2 in. Tire $1\frac{3}{8} \times \frac{5}{8}$ in.

The front springs are platform. The side-springs are 41 in. long, from out to out, with 7 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, six, namely: the first four No. 2 and the last two No. 3 steel. The cross-spring is $42\frac{1}{2}$ in., from center to center, with 6 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, six, namely: the first four No. 2 and the last two No. 3 steel.

The rear springs are platform. The side-springs are 43 in. long, from out to out, with 7 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, six, namely: the first four No. 2 and the last two No. 3 steel. The cross-spring is $42\frac{1}{2}$ in. long, from out to out, with 7 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, six, all No. 2 steel. Axles, $1\frac{1}{8}$ in., of Concord make. Track, 4 ft. 8 in., from out to out.

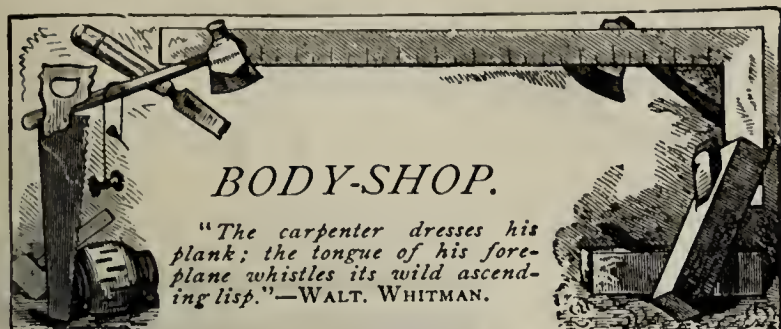
Finish.—The painting of such a wagon is usually more or less elaborate. We would suggest painting the lower panels, between the moldings, in dark green, edged with lines of vermilion and gold. The large sign-panel may be cream color, striped with black and gold. The panel between the moldings at the side light, and the three-cornered panel at the front, are both painted black. The running-gear is vermilion, with a broad stripe and two medium lines of black. Trimming, black enameled leather for the cushion and fall.

HINTS TO BODY-MAKERS.

In setting up a square-box buggy body be sure that the trestles are perfectly level; set up stakes on each side the full width of the panels, and square up the sides so that the flare is alike on each; after the end bars are glued in, square the bottom frame, then set-up the ends, fitting them to the sides, clamp them on, and see that the center springs out a little when they are being put on.

In all cases where the joints run parallel with the grain in the panels, cover them with a thin strip, leaving the grain running across the joint; it is best to bevel the ends of these pieces, and thus avoid square shoulders, the joints of which are liable to open.

When gluing panels upon crooked frame-work have cauls cut to the exact form of the portion to be paneled, and when the panels are in place set the work away to dry, in a position that will insure its drying without warping or springing.—*Coach, Harness and Saddlery.*



WORKING DRAWING OF BODY FOR LADIES' OPEN PARK PHAETON, WITH RUMBLE.

(See illustrations on this page, and also Fashion Plate No. 59.)

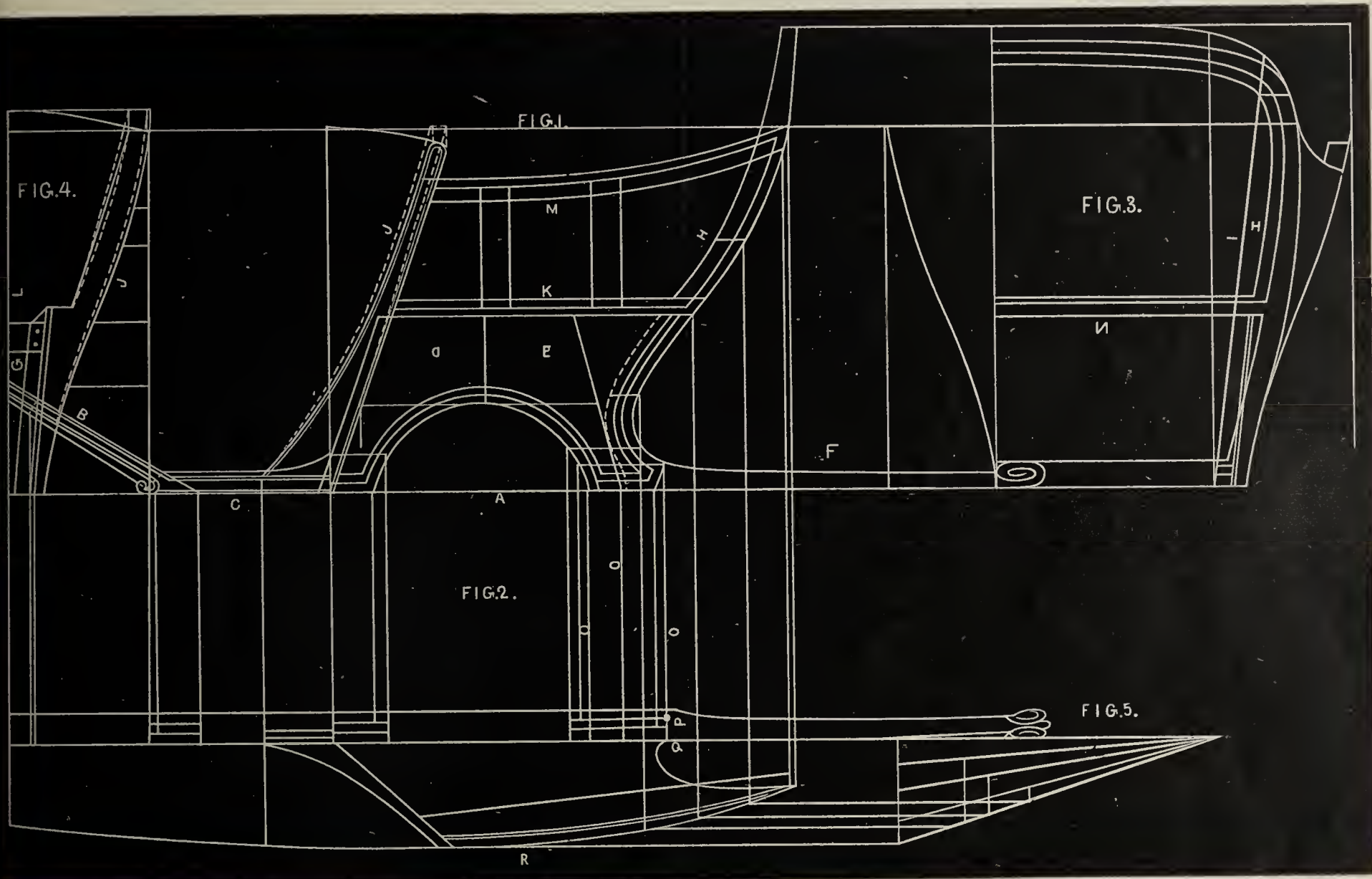
WE have been led to choose for our working drawing this month, the body of the "Ladies' Open Park Phaeton, with Rumble," constituting

We would state, before proceeding any further, that the lower section of the body is paneled. The sides form a recess, which sets in at the bottom about $\frac{5}{8}$ in., and on top, $2\frac{1}{2}$ in. from the outside. The back panel follows the sweep of the pillars.

DRESSING OF THE BOTTOM SILLS AND OTHER PARTS.

The toe-board bracket B does not incline, and is therefore dressed square; but C, D, E and F are inclined after line G, Fig. 4, and have to be dressed by that bevel. The inclination of line G, Fig. 4, can be utilized for the back corner-pillar H. Line I is the inside face of the corner-pillar. (See Fig. 3.)

The working out of the pieces C, D, E and F is easily accomplished, all having one straight side, either top or bottom, which is to be dressed by the bevel of line G, Fig. 4. The pattern can then be laid on both sides and marked off, when the dressing of the pieces will prove an easy task. The corner-pillar H and the middle pillar J are treated in a similar manner. Saw off the top and bottom ends of pillars H and J, the sides being parallel with the ground line A, and crosswise by the bevel



WORKING DRAWING OF LADIES' OPEN PARK PHAETON, WITH RUMBLE.—SCALE, ONE INCH TO THE FOOT.

(See description on this page.)

our Fashion Plate No. 59, from a desire to show a comparatively new and simple way of constructing such a body. We have again employed the proportional triangle in laying off the corner-pillar, which is of the ogee pattern; but we abstain from a detailed description of its application, for the reason that this has already been done exhaustively in our September number, pages 401 and 402, to which article the reader is referred for full particulars.

Our draft consists of five sections, namely: Fig. 1, the side elevation; Fig. 2, the cant; Fig. 3, the half-back view; Fig. 4, the turn-under of the middle pillar; and Fig. 5, the proportional triangle.

When the draft of the side elevation has been completed, the width of the body on top, at the different places, and also the turn-under, have then to be determined. On this draft these measurements are as follow: Width of body on top of the middle pillar, 45 in.; ditto at the rear, 39 in.; and ditto at the dash, 32 in. Turn-under, $6\frac{3}{4}$ in.

The timber used in the construction of this body should be of tough, close-grained body ash. Bent wood is preferable for the ogee pillar, white-ash being used in that case.

SIZES OF THE PRINCIPAL PIECES.

Two-inch ash is required for the bottom sills, 2-inch for the middle pillars, 4-inch for the rear corner-pillars, and 2-inch for the arm-rails. The cross-bars, with the exception of the back cross-bar and back rail, are made of 1-inch ash. The back cross or tail-bar is made of $1\frac{1}{2}$ -inch, and the back rail of $1\frac{1}{4}$ inch ash.

of line G. Lay the pattern on the inside of pillar H, and square a mark over to the outside, from the intersection of the pattern mark with the ends, either on the front or rear face, the rear face being preferable on these pillars. The pattern is then placed on the outside of the pillar and marked off, and then dressed by the two lines.

We stated that all the pieces forming the bottom sills are to be 2 in. thick. This would apply to D and E only, if the sunken panel were to be put into a groove; but in case the body-maker should prefer to glue the sunken panel over the bottom sills D and E, then the panel will have to extend to the bottom edge of the bottom sills D and E. The bottom sills D and E will then require only $1\frac{1}{8}$ in. stuff, which will be found amply heavy, as the bottomsides are high, reaching to the bottom edge of the center piece K. The molding and the margin, having a thickness of $\frac{5}{8}$ in., are then glued to the outside. We prefer the last-named method, for the reason that the other method, of putting the panel into a groove, would involve considerable labor, as the bottom sills D and E would have to be cut down from the bottom of the center piece K, to the top of the margin at the bottom of D and E.

FRAMING THE BODY.

In framing the body, the toe-board piece B is mortised into bottom sill C. The tenon on B is gauged off, while the mortise on C has to be pricked off. This is necessitated by reason of the bottomsides B being vertical, while C inclines. The amount of displacement of the mortise at the bottom face of C can be ascertained by noting the difference be-

tween lines G and L, Fig. 3, at the height of bottomside C. The middle pillar J, and the corner-pillar H, are mortised into the bottom sills. The inside of the corner-pillars H and J have the same inclination as line G, Fig. 4. The mortises and tenons can therefore be gauged off. The arm-rail M is let in from the outside of the pillars J and H, and fastened with a screw at each end. The center piece K is mortised into the corner-pillar, and let into the middle pillar from the inside. The sunken panel, which is left high enough, is glued to the inside of the center piece K.

If the back panel is made of one piece, the cross-bar N is framed even with the inside of the groove, and a molding is then nailed from the outside, dividing the back into two sections; but if the body-maker prefers to employ two panels, the cross-bar N is then framed even with the outside or back face of the corner-pillar. The panel is then put into a groove all around, the bottom cross-bar O alone excepted, the panel being glued to the same.

The bottom cross-bar is of considerable width, and fills the space between the rear face of the corner-pillar and the wheel-house, thus giving ample space for the mortise. The toe-board bar is mortised in, and the remaining two bars are let into the bottom sills. After the bottom sills are connected with the cross-bars, the back is then glued to the bottom sills first. The next thing to do is to put in the recess panel, which is glued to the rockers C, D and E and the center piece K. The middle pillar J and the arm-rail M are then fastened temporarily, and the upper side panel is marked off and fitted. When this has been done, the panel is inserted in the groove of the corner-pillar H and the center piece K. The arm-rail M and middle pillar J may then be fastened to the body, either together or separately. In the latter case, the arm-rail is put on first and the pillar last.

The lines necessary for the construction of the proportional triangle are indicated on the draft, and also the point obtained through the turn-under as pricked off from line R, which is here point P, while the point of displacement is shown in Q. Dotted lines on the middle pillar J, Figs. 1 and 3, show the position of the pillar when lengthened.

We feel assured that, with the explanation thus given, in connection with the usual mechanical description accompanying our fashion plate, it will be an easy task for the draftsman or foreman or body-maker to make a full-size working of this body, and to construct it satisfactorily.

ALBERT KEHRL.

OIL-STONE FOR SHARPENING CHISELS, ETC.

ARDLEIGH, ESSEX, ENG.

EDITOR OF THE HUB—DEAR SIR: I have never seen in your valuable magazine anything respecting oil-stones, and as they are of great importance in the wood-shop, I will, with your permission, give a hint or two for the benefit of the readers of *The Hub*.

Many a man has spent shillings for a stone that has proved to be worthless. To choose a good stone at the dealers, first wet the face, and draw the thumb-nail over it; and the faster it cuts the nail away the better the stone. If it won't cut the nail it is worthless.

The apprentice and others, whose means are limited, can make an oil-stone for themselves in the following manner: Take a piece of zinc about $2\frac{1}{2} \times 12$ inches, and a block of wood $10\frac{1}{2}$ inches long. Stretch the zinc tight over the wood, and nail the ends into the ends of wood. Then mix a little flour of emery with oil, to a thin paste, and apply a little to the zinc before sharpening. The zinc will cost only one penny, and $\frac{1}{4}$ lb. pound flour of emery about three half-pence. Thus you can get an excellent sharp for $2\frac{1}{2}$ pence, or 5 cents, that will last for years.

Yours faithfully,

M. WHITE.

HINTS FOR BODY-MAKERS AND DRAFTSMEN.

XI. FOUR DESIGNS OF DOG-CART BODIES.

The following four designs of Dog-cart bodies were forwarded to us by Mr. M. Kent, of Staines, Middlesex, England, who will please accept our thanks for his kind thoughtfulness. Although not strikingly new to American builders, yet each of these patterns presents points of interest.

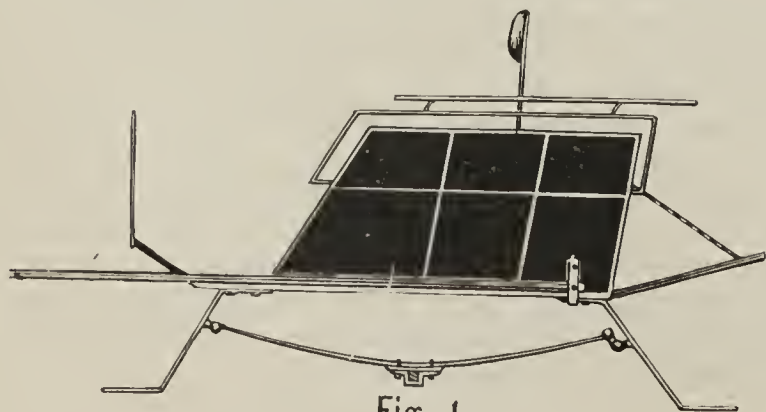


Fig. 1.

Fig. 1 shows a cart intended for a small-size horse. The body is short, although intended for four persons, and the seats therefore cannot be made of any great depth. The sides are not high, but are well proportioned to the length of the body. Each side consists of a bottom sill, four uprights, and a top-rail. The side panels are glued on to the frame-

work, and the moldings are then glued on the outside. The width of the body across is 39 in. on top, and 34 in. at the bottom. Height of body from the ground, $28\frac{1}{2}$ in. Height of wheels, 3 ft. 3 in.

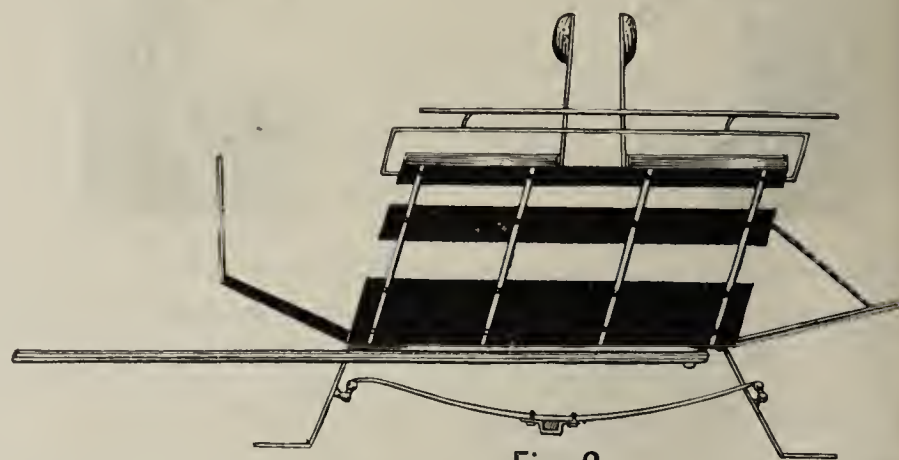


Fig. 2

Fig. 2.—The sides of this body are composed entirely of slats. Uprights are framed into the bottom sills on the inside. The outside upright horizontal slats and inside uprights are bolted together, as shown in the drawing. It will be noticed that the horizontal slats diminish in size toward the top. The appearance of the body can be greatly improved by painting the horizontal slats in the natural color of the wood, and the uprights black. The tail-gate is constructed after the same style as the sides. The body measures 40 in. on top, and 36 in. at the bottom. Height of body from the ground, $29\frac{1}{2}$ in. Height of wheels, 3 ft. 6 in.

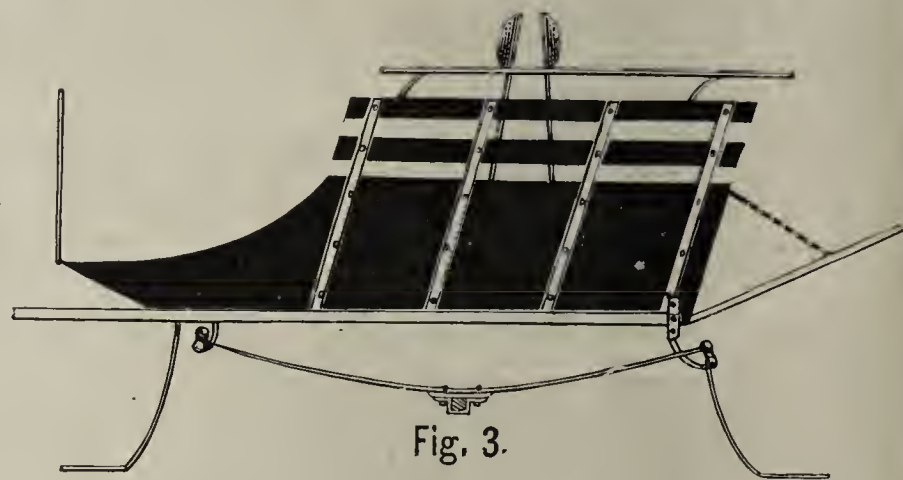


Fig. 3.

Fig. 3.—This body resembles the so-called Gadabout Cart in many respects. The main difference is, that the front top and bottom sweeps approach a sharp point, while, in the case of what is known by our New-York builders as the Gadabout, the front has a narrow panel. The shafts are placed lower than on the regular Gadabout. The rear corner-pillars are framed about $\frac{7}{8}$ in. from the rear end of the side-panel, allowing $\frac{5}{16}$ in. for the projection of the panel outside of the tail-gate, and $\frac{9}{16}$ in. for the back panel. The vertical slats on the sides are usually made of iron. An upright is framed into the bottom sill opposite the front vertical slat, and a horizontal rail is framed into the rear corner-pillars and front uprights. The seat-boards rest on this horizontal rail. Width of body on top, $41\frac{1}{2}$ in., and ditto bottom, 36 in. Height of body from the ground, 2 ft. 11 in. Height of wheels, 4 ft. 8 in.

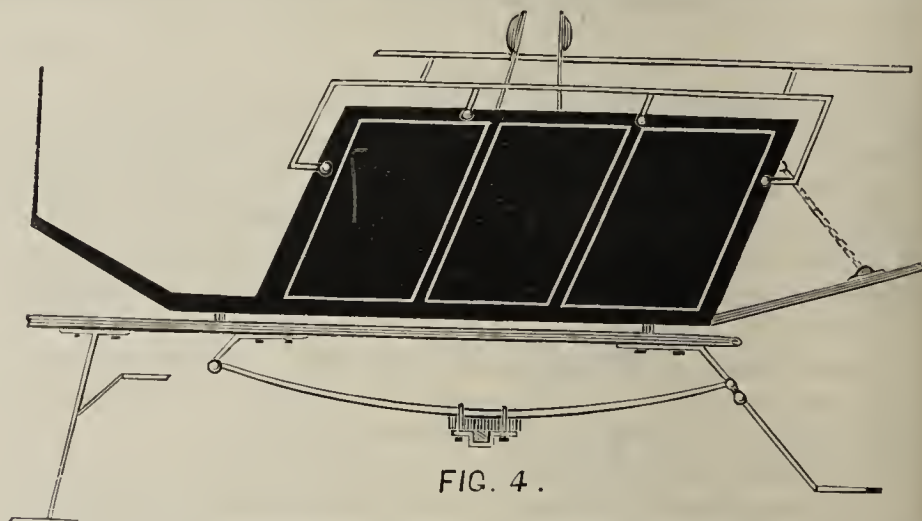


FIG. 4.

Fig. 4.—The principal novelties of this cart are the outside moldings. They are very heavy, but give the body a substantial appearance. The panel is put into the groove all around. The toe-board bracket is framed into the bottomside, and strengthened by a plate on the inside. The front pillar is mortised into the bottom sill, which is also the case with the rear corner-pillar. To gain substance for a good tenon on the rear pillar, that pillar is made extra wide, and the width of the molding rabbeted off. The two moldings between the front pillar and rear pillar are glued to the side panel. The rail for the seats to slide on is let into the front and rear corner-pillars, at the proper height. Width of body on top, 42 in.; and ditto bottom, 36 in. Height of body from the ground, $40\frac{1}{2}$ in. Height of wheels, 4 ft. 10 in.



WHEEL-SHOP.

HOW TO REMOVE A TIGHT TIRE WITHOUT INJURY TO THE WHEEL.

CINCINNATI, O., Sept. 23.

EDITOR OF THE HUB—DEAR SIR: Will you have the kindness to add another chapter to your already numerous and valuable "How Papers," on the following subject. Occasionally we have some of our buggies sent to us, to replace a spoke or so which has become broken by accident. We experience much difficulty in getting the tire off without injuring the rim. We prefer not to cut the tire if we can remove it readily without. Please give us a receipt for the ailment, and oblige,

M.

ANSWER.—Our receipt for this trouble is a simple one. If the tire is heavy, make two or more pieces of iron, as per accompanying illustration, three-fourths of an inch thick and somewhat narrower than the tire.



Heat one of these pieces to a red heat, and lay it on the floor, concave side up; and on this hot iron place the tire, moving the wheel the length of the iron, at intervals of ten seconds. While one piece is being thus heated, let another, or two other pieces, remain in the fire so as to replace the first one when it becomes cold. A few minutes will serve to expand the tire, when it may be removed with a tight pressure without injury to the rim.

Light tires may be removed still more readily, by placing the hub against a vertical post, and placing a piece of thin sheet-iron next the tire, to which hold a paint-burner, and cause the wheel to revolve rapidly. This requires but a few moments.

Neither of the above methods will injure the paint of the rim, providing ordinary care is observed.

N.

A CASE OF CHECKS IN WHEEL RIMS.

WE are permitted to make public the following inquiry, addressed by a Western wagon-manufacturer to our esteemed friend and correspondent, Mr. H. G. Shepard, of New-Haven, Conn., together with the reply of the latter.

MR. H. G. SHEPARD—DEAR SIR: I desire to submit a question that has provoked some argument among us, and to ask your opinion, knowing you, as I do, to be a good authority on such matters.

We have had some trouble with rims splitting at the tenon and end of half-m. The manufacturer of our light wheels says he bores an oval hole in the rim. Thus he compresses the timber sideways, and, while so compressed, he bores for the spoke tenon; and he claims that, after the hole is bored, the timber, being weakened by boring the hole, springs in a little, so that the auger, in being drawn out, shaves the side of the hole and makes it larger sideways when the pressure is removed.

The manufacturer claims that he does not compress the timber sufficiently to make the hole, as first bored, oval; but that, after boring through, the sides of the hole will spring in under the pressure, so that it is enlarged by that way by drawing out the bit.

Now the question is: Does this process weaken the felloe and make it more liable to split? The manufacturer claims it does not, but some of our men claim that it does, and I would like your opinion.

Respectfully yours,

F. D. S.

ANSWER.—My belief is, that the compression does no injury to the rim, but is of little or no benefit to the wheel,—certainly none whatever to a heavy wheel, as it does not do what is claimed for it, that is, make an oval hole. In a light rim the round hole is slightly reamed on opposite sides, but the reaming is confined to so small a space on the sides of the hole that the hole is still practically round, and the tenon of the spoke till gets a wedging hold of the rim, with nearly as much splitting power as though the hole were perfectly round.

In regard to this compression causing checks in the rim, a little thought will convince you otherwise. Such checks occur in the center of rims, and, if caused by compression, it must be because the grain of the wood was crushed at the center of the rim, which it would be impossible to do by pressing on the side of the hole. The rims probably check because the wheel-maker does not do what he claims to do,—that is, make an oval hole.

H. G. SHEPARD.

INQUIRY FOR A ONE-WHEEL VEHICLE.

EDITOR OF THE HUB—DEAR SIR: We have an order for a one-wheeled vehicle, and are unable to find any information respecting same, further than to learn that at one time there was an advertisement in one of the New-York papers explaining it. Thinking it might have been your paper, we write you to know if you can kindly give us any information respecting it, or the maker's name.

Yours faithfully,

ARKELL & DOUGLAS.

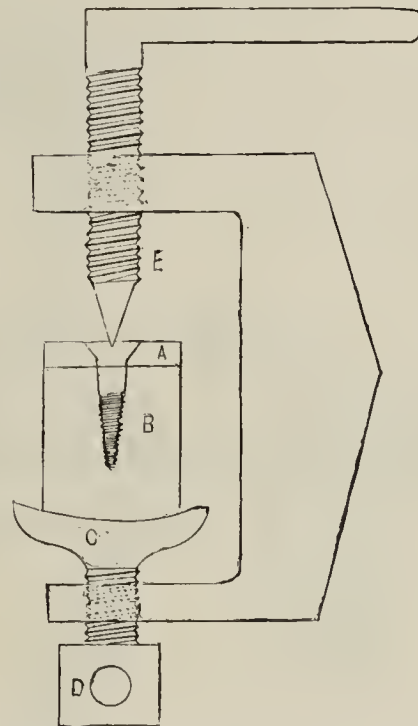
ANSWER.—Two such one-wheel sulkies have been mentioned in *The Hub* within a comparatively recent period, namely, the "One-wheeled Trotting Sulky" patented by David Berry, of Gualala, Cal. [see our September number, 1883, page 368]; and a similar vehicle, also intended to be used with a horse, made by Prosper Humbert, of Austin, Texas.

Possibly your correspondent refers to that cousin of the bicycle known as the "Monocycle" or "Unicycle," to be ridden by a man, such as that shown at the exhibition by the University Coöperative Association, held at Long Acre, London, in July, 1881.

If any of our readers are acquainted with other one-wheel vehicles, barring the time-honored wheelbarrow and the children's "push wheel," we shall be glad to receive the addresses of the makers, and to forward them to our correspondents.

SIMPLE DEVICE FOR DRAWING RUSTY SCREWS FROM RIMS.

ANNOYANCE is often experienced in drawing old screws from rims after having worn away and rusted; but much of this can be obviated by use of the simple device represented in the accompanying cut, where A represents the tire; B the rim, with the screw inserted, the device being shown in the act of withdrawing the screw; and C a concave piece of iron, covered with leather, to prevent scratching the paint, and adjustable to almost any rim by turning the square-head screw.



Clean out the slot in the screw-head as well as possible before adjusting the screw-driver E, which should be of hard and tenacious steel. The thread on the screw-driver should be No. 10, in order that the screw may not crowd it in turning out. The handle of the screw-driver need not be more than 6 in. long.

I have used the above-described arrangement for a good many years, and find it very successful in drawing at least 90 per cent. of old screws and I now present the idea to readers of *The Hub* for what it is worth.

When using the apparatus, tighten up the lower screw before turning the screw-driver, as one works independently of the other.

R. H. LEE.

ENGRAVED WHEEL TIRES.

SOME years ago, a clever wheeler who was making a set of wheels for a traveling carriage for the celebrated Murchison, when about to explore the Ural mountains for gold strata, said to his master: "When this carriage comes back, and the tires are taken off, one of them will have 'Murchison' engraved on the inside of the tire." He was laughed at, but the name was there when the wheel was inspected some years afterwards. The wheeler had driven into the sole of the felloes hard wood wedges, which, by their shape, formed the letters of the name. These had held the grit and abraded away the surface of the iron, leaving the letters deeply sunk and conspicuous.—*London Carriage Builders' Gazette*.

ONE thousand dollars in gold weighs four pounds. Can it be that this fact explains why so many carriage-builders are round-shouldered?



NEW DESIGN OF GEARING FOR HEAVY COUPÉ-ROCKAWAY.

[See Four Illustrations accompanying, all drawn to the scale of one inch to the foot.]

THE majority of our blacksmith friends will coincide with us in the belief that to originate an entirely new and yet practicable design of gearing for any vehicle is almost impossible. Changes are introduced occasionally, but these are usually confined to details. The gearing here illustrated is no exception to the rule, although it presents several features differing from any published before, as will be pointed out.

Four sketches are introduced to explain the design, including Fig. 1, the side elevation; Fig. 2, the front view; Fig. 3, the top view of the lower gear; and Fig. 4, the top view of the upper gear. This gearing was designed for a heavy Coupé-Rockaway, but it is equally adapted for T-carts and many other four-passenger carriages.

Fig. 1, the side view, shows the general position of the different parts, and the length and opening of the springs. The mode of fastening the whiffletree to the draw-bar differs somewhat from that commonly used on coaches, landaus, etc. The iron cap is driven tight on the whiffletree,

nut of the bolt from bruising the paint. This bolt also receives a burr at the end, to keep the nut from slipping.

Fig. 2, the front view, illustrates the sweep of the top and bottom beds, and the position of other iron parts. The top bed is made of iron and is made even with the outside of the body.

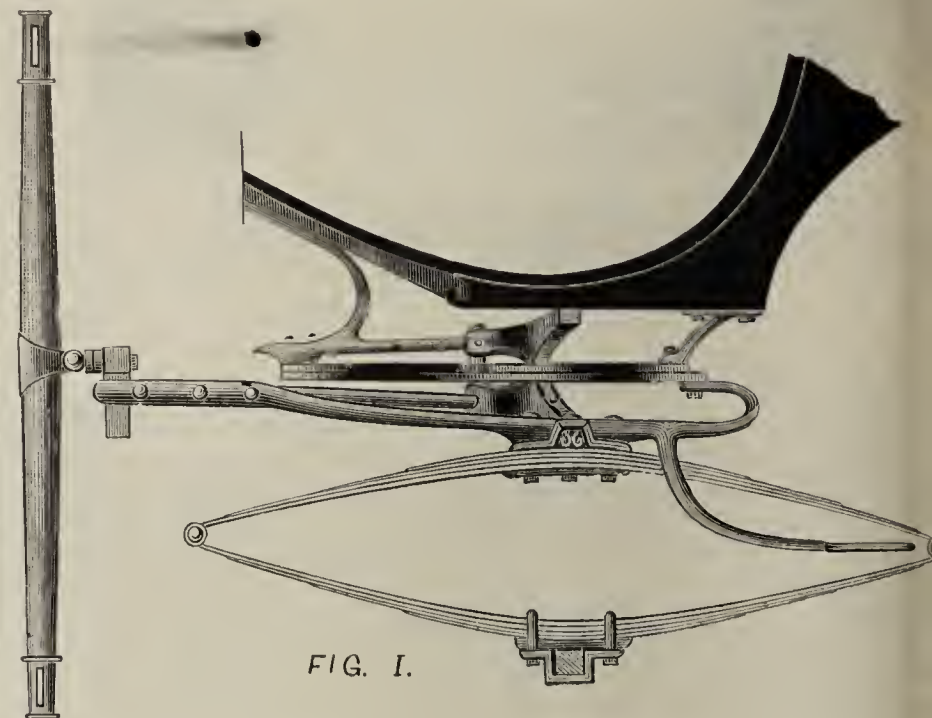
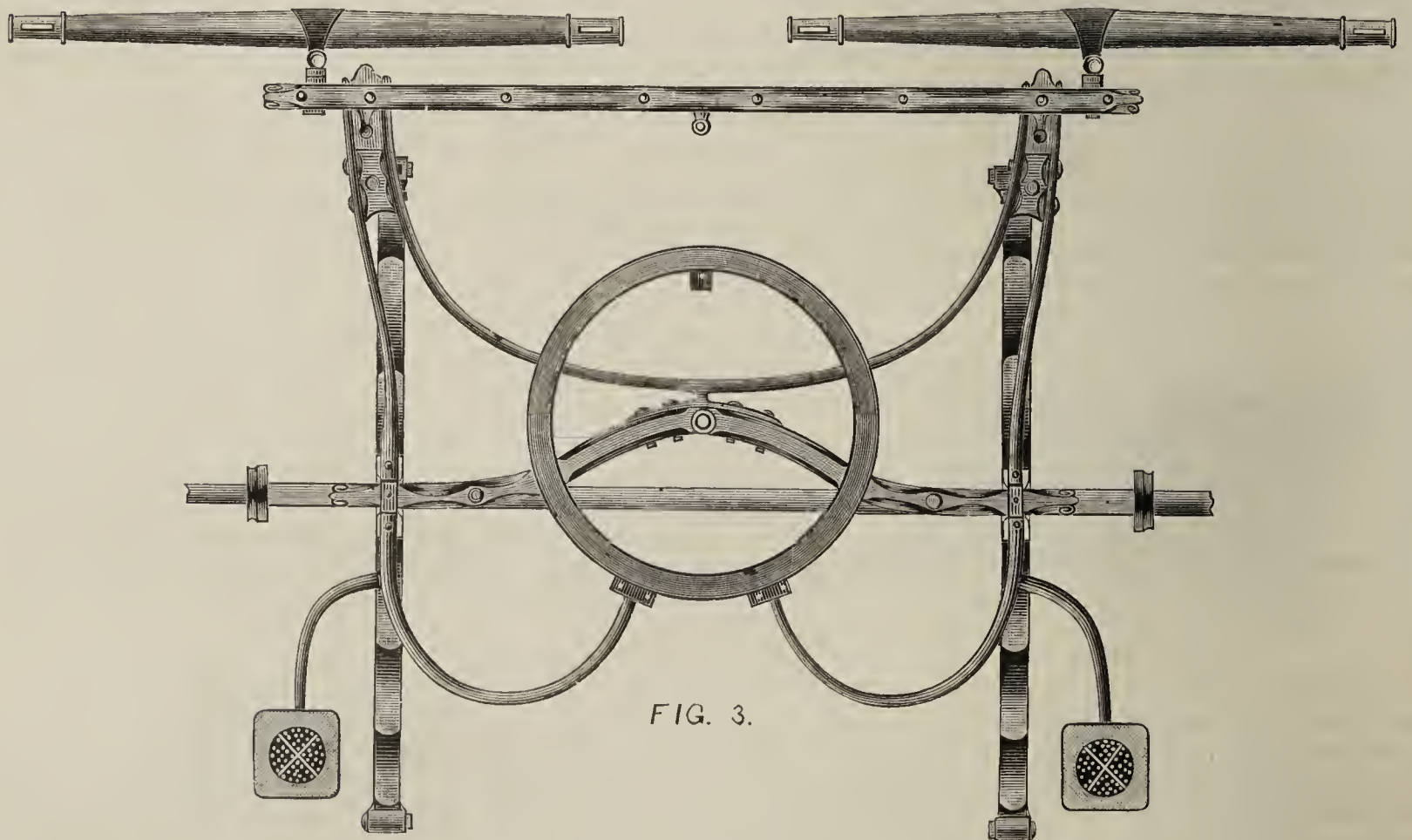
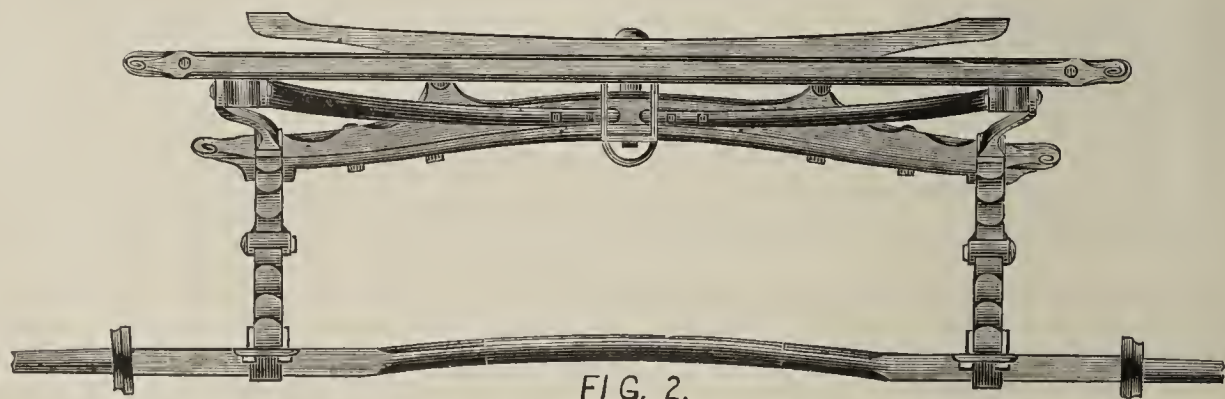


Fig. 3, the top view of the bottom gear, shows more plainly the shape of the different pieces which compose the gear, and how they are secured. It will be seen that no wooden wheel-bars are used. The stay representing the futchels is fastened to the bed by four bolts. [See drawing] Two laps are welded to the back of the fifth-wheel, for fastening the



NEW DESIGN OF GEARING FOR HEAVY COUPÉ-ROCKAWAY.—SCALE, ONE INCH TO THE FOOT.

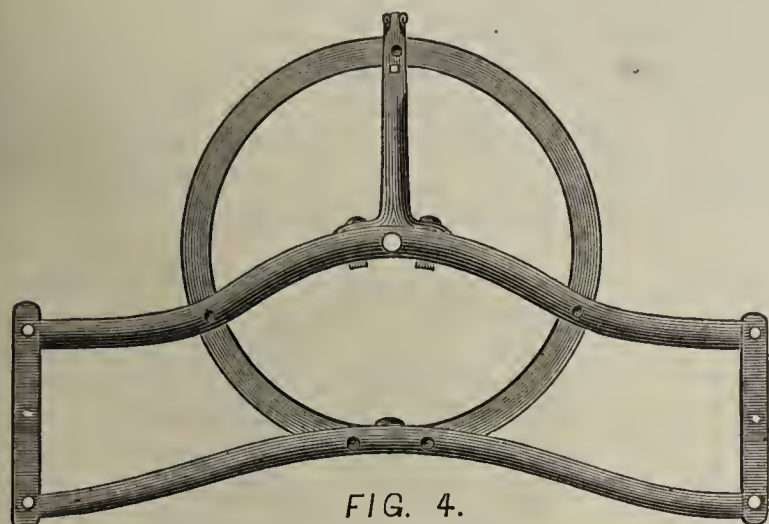
(See description on this page.)

forming at the back end a tongue. The head of the bolt connecting the whiffletree to the draw-bar is made thick enough to receive a slot for the insertion of the tongue of the whiffletree; both are then connected by a bolt. A burr is put on the end of the bolt, to prevent the nut from coming off. Below the bolt-head a collar is formed, and collar washers are secured to the draw-bar at the front and rear, to keep the collar and

spring-stays. The step shanks are welded solid to the spring-stays, as customary.

Fig. 4 gives a top view of the top bed, rear bar and puncheon. These pieces are all made of iron. The puncheon and the front body-stay are made solid, as is shown in Fig. 1, and bolted to the front of the top bed as shown in Fig. 4. The safety hook is fastened to the puncheon, and

ong rivet connects the combined puncheon and front stay to the fifth-wheel. The two short end-bars are welded solid to the top bed and rear r. Three bolts are used on each side to secure these pieces to the dy.



The following are some of the principal measurements of this gearing, adapted to a Coupé-Rockaway. Height of wheels: front, 3 ft., and rear, 4 ft. Axles, $1\frac{1}{8} \times 7$ in. box. Tire, $1\frac{1}{8} \times \frac{5}{16}$ in., round edge wheel. Springs: length, front, 35 in., and rear, 38 in. Width of steel, $\frac{1}{2}$ in. The front springs open 9 in. over all, and rear, $11\frac{1}{2}$ in. over all. The above particulars, with the further aid of the scale drawings, could prove sufficient for the execution of the job.

It will be noticed that the greater portion of this gearing is made of iron, and it consequently demands skillful treatment on the part of the blacksmith; but any difficulties encountered may be readily overcome by little energy and patience.

J. L. A.

HOW TO WELD STEEL AXLES.

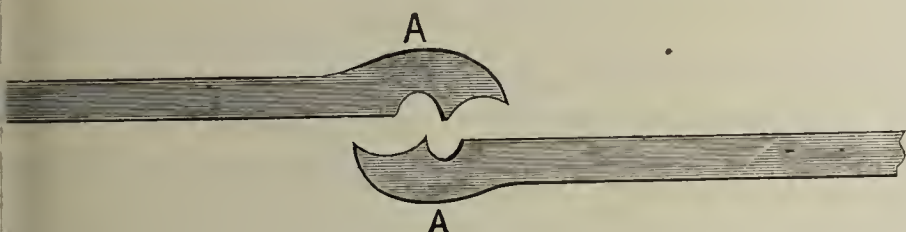
CLARKSBURGH, W. VA., Sept. 2d, 1884.

EDITOR OF THE HUB—DEAR SIR: Can you tell me how to weld steel axles? Please also state the cause of some welding harder than others, and what kind of steel they are made out of.

By answering the above you will greatly oblige me.

D. H. RUHL.

ANSWER.—There are many methods employed for welding steel axles, but a carriage-smith of Philadelphia, who has had considerable experience in this line of work, describes as follows how it is done.



When the axles are ready to be cut off, allow about one-quarter of an inch for waste upset. Weld, and make a short scarf. Then take a small file, say $\frac{1}{4}$ in., and fuller in at point A, as shown in the accompanying sketch. This forms a sort of hook, which must be locked together when the heat is taken, to prevent slipping. Light blows at first are better than heavy ones.

Simple borax is a good flux. Cover the steel well, but not heavy. Then sprinkle some iron filings in the borax while on the axle. Then mix some clean sand and iron filings, to throw occasionally upon the steel while heating. A very little at a time will do. Take a good high heat, and you are reasonably sure of success; but if your heat should be too high from any cause, apply common rosin while the axle is hot, and it will restore the carbon in the steel to its proper standard. Remember, however, that when you apply rosin, the material must always be worked backwards.

Hard steel, as a rule, welds better than soft steel. Bessemer, Pittsburgh, Swedish, cast and other steels are used in the manufacture of axles, and consequently the nature of the particular kind of steel you are using will be of service in determining what heat to take. I believe Pittsburgh will stand the highest heat without injury, and probably Bessemer next. Steel axles are sometimes crystallized, and are then harder to weld,—that is, to get a good weld. Swedish will weld at a lower heat than many other kinds, but as a general thing is brittle and very stiff; it will, however, wear well.

I would advise that as little borax as possible be used; but the mixture of sand and filings should not be dispensed with, as it serves as a better outside than borax.

R. H. L.

A LADY was reproaching Mr. William Warren, at a recent reception, for going into society so little. "You ought to let us lionize you a little," she said. "I have never heard of but one man," replied the veteran actor, "who was not spoiled by being lionized." "And who was he?" "Daniel."

SIDE-STAYS FOR EXPRESS WAGONS.

"MR. EDITOR—I take *The Hub*, and have ever since the first year of my apprenticeship. I want to learn, and have raised the courage to ask you to help me out. I have just got a fire, at which I iron the bodies of express and business wagons. We make the stays the same as in the drawing I have penciled. [See Fig. 1.]

I don't think these are good enough. The boss says I can make them a better way if I like. I have seen some stays with an elbow on. I wish you would tell me how to make them."

APPRENTICE, Minneapolis, Minn.

ANSWER.—Our correspondent is evidently going to work the right way, and is to be commended for his desire to learn how. We are pleased at being able to give him some information concerning what he now desires to learn. We showed his letter to one of our leading city builders of express wagons, who kindly introduced us to the foreman smith, whom we shall call Barney.

FIG. 1.



FIG. 2.



We presume our young friend means, by "a stay with an elbow," a stay with an offset, as Barney calls it. This we present in Fig. 2. Fig. 1 preceding is the drawing sent, which shows the old method of merely flattening the stay out at the end, and riveting on to the body.

Here is what Barney says: "For this big wagon I use $1 \times \frac{5}{8}$ inch iron, and just turn the corner, leaving it as rounding as I can on the inside." [See Fig. 3.]

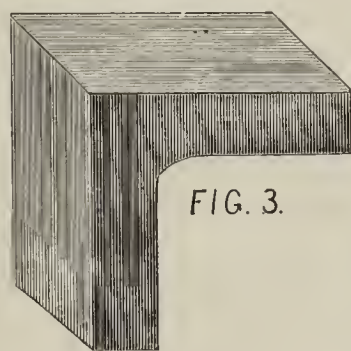


FIG. 3.

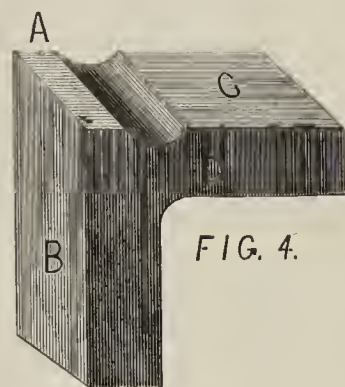


FIG. 4.

"This end B [Fig. 4], I leave for the end to rivet on the body. On this end, C, I sink the fuller in on this side, as at D; and use this and C for the stay after I have fullered and swaged this short end A, and made it like this E and G." [Fig. 5.]



FIG. 5.

"Then I swage this end F, and square up this end H, and then turn the corner as at J [Fig. 6]. M and I are as G and F [Fig. 5]; and I round up this part K to weld on to the other part, and put a hole in here, at the center of the top of J, for the bolt."

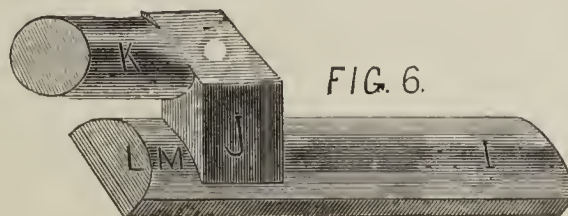


FIG. 6.

We have given the above explanation just about as we received it from Barney, which we think is quite plain; and we have made the cuts to represent the iron as it appeared, which we think will be readily understood by apprentices and others.

A MICHIGAN girl wrote to a locomotive manufacturer saying that, if it didn't cost too much, she would like to buy one of their new spark-arresters and see how it worked.—*Burlington Free Press*.



HOW TO PAINT A COUNTRY BUGGY.

EDITOR OF THE HUB—DEAR SIR: Will you, in your next issue, please give full directions how to paint a buggy as it ought to be done to stand country work. By so doing you will confer a favor on me. E.

ANSWER.—See article on this page entitled: "Suggestions regarding Cheap Carriage-Painting."

WANTED: A SIGN PAINTERS' LETTERING BOOK.

EDITOR OF THE HUB—DEAR SIR: Where can I purchase a sign painters' lettering book, and what is the price?

By answering the above question, you will greatly oblige an old subscriber of *The Hub*. H. W. EDWARDS.

ANSWER.—Address Messrs. F. W. Devoe & Co., 103 Fulton-street, New-York City, who have many such sample books, containing both plain and ornamental lettering well adapted for the sign painter.

ANOTHER CASE OF COLOR CRACKING.

COATICOOK, QUEBEC, CANADA.

EDITOR OF THE HUB—DEAR SIR: Will you, in your next, please give a little advice to one of your constant readers. I am troubled with my paint cracking, especially drop-black. I use Masury's best. Is there any other make you could recommend? Or is it in my ground-work that the trouble lies. H. W. E.

ANSWERS.—Too much oil in your ground work is most likely the cause of the cracking referred to,—that is, the under-coats were probably not dry, even though they seemed to be so. One coat applied too soon over another, that is, not giving enough time between coats, is almost invariably the source of the trouble you name. Masury's drop-black is an excellent color, and we hardly think that was to blame. It is mixed in Japan, however, as are all such prepared coach colors, excepting the finer grades of lake, etc., and the application of such a color, if at all quick, over oil-lead that is not perfectly hard, will certainly cause trouble of some sort.

To avoid such disasters in the future, add oil to the drop-black, enough to give it an egg-shell gloss, and then have each succeeding coat partake of the nature of the one preceding it. If we start with an elastic primer, it is imperative to follow with elastic coats, but gradually reducing the elasticity of these, by leaving out a certain proportion of the oil, until we reach the color-and-varnish.

SUGGESTIONS REGARDING CHEAP CARRIAGE-PAINTING.

TO THE EDITOR—DEAR SIR: Can you recommend any course of carriage-painting that will apply to country shops, where we get only \$10.00 for painting a piano-box buggy? I use the old lead-and-oil system, with two coats of varnish, of Montreal make, for leveling, and English finishing. EDWARDS.

ANSWER.—It is generally conceded by those engaged in the trade, who have perfectly tested the lead-and-oil, or English system, in comparison with the elastic wood-filling or American system, that the latter effects a saving of both time and material, and we therefore feel constrained to recommend our correspondent to give a trial to that comparatively new but now well-tested system, as a means to reduce expense.

A cheap buggy can be painted for \$10, and leave a fair margin for profit, by following the course named below:

Prime with one coat of Piotrowski's wood-filling, but carefully wipe this off, leaving only the pores filled. Give 48 hours to dry. Rough-stuff as usual, applying two or three coats, but use ten per cent. additional oil in the first coat, to accommodate it to the elasticity of the priming. Rub, color, and varnish as usual.

The above avoids the long delays necessitated where lead coats are used, owing to their slow-drying properties, and it also saves the material and labor they would require; while at the same time, it gives equal if not better results.

SOME thoughtful person says: "It is unkind to ridicule those items in the papers about centenarians. It is no easy thing to become a centenarian; many competitors have failed."

TRADE-MARK OF THE NEW-YORK CAB CO.

THE following cut represents the trade-mark of the New-York Cab Co., Limited, of this city. It has been closely imitated by rival cab owners, who wished to profit by the popularity of the company's cheap cabs, the imitation being frequently almost an exact copy of the design. These infringements have led to constant disputes, and finally recourse to the Courts was had. We are delighted to state that a recent decision has been given sustaining an injunction obtained by the company against the bogus cabs. Surely, in late years, no crest has occupied a more prominent place in public attention than this one.



The above crest is quite elaborate in execution, and, as the number of cabs has increased, hand-painting has been dispensed with in favor of the more exact and less expensive reproductions by the decalcomanie transfer process, a beautiful specimen of which, by Palm & Fechteler, of this city, is now before us.

In this original, from which our cut has been reduced, the diameter of the belt is six inches. It is executed in fourteen colors and shades, the predominant ones being tan color for the belt, with black lettering and gold buckle and tip; gold crown in the center, with red and blue jewels; and plumes in red and blue.

We hardly need to add that, in design and coloring, this is the crest of the Prince of Wales, minus his motto, *Ich dien* (I serve). Why it happened to be selected by an American company, we won't attempt to say; but it is certainly attractive, and its popularity among New-York customers of public carriages is a noteworthy fact of the day. We only wonder that the company did not retain the motto as well, or a translation of it, for no motto could better express the evident desire of this public-spirited company than the simple phrase above quoted.

COLOR NOTES.

ULTRAMARINE is a color which has made great progress, although it is not a recent substitute, its manufacture dating from 1828, when it was discovered by Guinet. In 1820, the blue prepared from lapis lazuli cost \$400 per pound; now the yearly production of ultramarine in Europe (chiefly in Germany and France) is over 22,000,000 pounds, sold at less than twenty-five cents per pound.

FROM the light of coal-tar oils a whole series of aniline colors, of formerly unknown shades, have sprung up, exceeding in value \$10,000,000 annually. The estimated value of the production of coal-tar colors in England and on the Continent, is about \$16,000,000; and this industry has placed at the disposal of commerce products which, but for chemical research, could never have been obtained.

SIMPSON'S "TREATISE ON COACH PAINTING."

WE have several times had occasion to allude to the important serial entitled "Treatise on Coach Painting," written by the late Mr. W. Simpson, practical coach-painter, of London, Eng., whose scattered installments have given special value to the *Coach-Builders' Art Journal* during its past two volumes. The concluding chapter of this essay appears in its September issue; and we beg now to suggest that it well deserves republication in inexpensive pamphlet form. The science of modern coach-painting, as practised in Great Britain, has certainly never before received such careful and exhaustive treatment; and, although some minor corrections and additions might possibly have been introduced in the later installments, but for the sudden death of the experienced and well-trained writer, it seems to us an entirely satisfactory exposition of the subject, and well worthy of study not only by European painters but by their American brothers as well, which latter, in their constant endeavor to attain the speed necessitated by modern methods of manufacture, are too often led to give a second place to the condition of durability.

A BALTIMORE firm advertises "Whitewash ready mixed, of various colors."

WHAT CAUSES PAINT TO BLISTER AND PEEL?

(Response to Article with same title on page 406.)

EDITOR OF THE HUB—DEAR SIR: If an apprentice may be permitted to enter into the learned councils of *The Hub's* "Paint-Shop," I would like to present a few thoughts suggested by the selections published in your September number from Mr. Matern's article on "Paint Blisters." Mr. Matern appears to favor the theory that paint blisters are caused by the expansion, by heat, of the air confined in the pores of the wood. It is my purpose in this communication to give a definite account of the effects of heat on confined air.

We all know that heat expands gases; and careful tests have proved that each degree of heat added, increases the bulk of the gas $\frac{1}{493}$. So that a vehicle that has had the air confined in the pores of the wood at a temperature of 60°, on being raised by the rays of a summer sun to 160°, will increase in temperature 100°, and in volume $\frac{100}{493}$, or nearly one-fifth.

Whether the size of these blisters is too great or too small to be accounted for in this way we cannot determine, unless we know the amount of air under the paint.

Now, for expanding air to raise paint into blisters requires a certain amount of pressure, and the investigations of scientists enable us to estimate this pressure very accurately for our assumed conditions.

Heat applied to a gas may have either of two effects. It may expand it, or it may increase the pressure. It does these in a very definite manner; and it is well known that, if the gas cannot expand, it will increase in pressure 15 lbs. on every square inch for every 493° of heat, or 3 lbs. for every 100°.

Whether a pressure of three pounds on a square inch of paint would be sufficient to raise it into a blister, the painter may judge for himself. At any rate, there need be no doubt as to the correctness of our conclusions so far as we have gone, for they are simple applications of some of the best founded facts in science; and, for my own part, I feel satisfied that we have in the expansion of confined air a frequent cause of blistering.

S. M. HYNEMAN.

403 East Mound-st., COLUMBUS, O., Sept. 14, 1884.

CRACKING OF COACH ROOFS, AND HOW TO PREVENT IT.

A SUGGESTION BY MR. MATERN.

CARRIAGE painters are at present much agitated as to "How to paint the canvased roof of a carriage," to guard against the paint blistering and cracking.

In order to remedy the evil of blistering and cracking, it is at once necessary to know, "What causes paint to blister and crack?" The solution of this question is—*soft paint*. A canvased roof cannot be painted with as thin a layer of lead color as upon a smooth piece of wood, for the open spaces of the canvas fill and hold the paint confined, and cannot harden as when exposed to air in a thin layer; and, consequently, the paint remains soft, and liable to give way in hot weather to the pressure of expanding air both in canvas and in wood, forming blisters. It also gives way to the contraction of the hard finishing coats in cold weather, when it forms deep and broad cracks.

This once assured, the painter must provide himself with paint that will harden in thickly spread coats. What paint is at his disposition that will fill this requirement? Roughstuff (filler) will harden through thick coats, but has the objection of being too brittle a paint, as the jarring of the vehicle, as well as heat and cold, will cause it to crack, and probably peel off.

In looking through the list of pigments, the painter finds but one substance that will answer the purpose, namely, red-lead. If pure, this will harden with pure raw linseed oil, even when confined in a closed vessel, and will harden quicker when exposed to air than any other ingredient known to painters. Red-lead is the prime factor for all durable painting, when pure and mixed with pure raw linseed oil, with a little dryer, in such proportions that it holds as much red-lead as can possibly be spread easily with the brush, when it hardens to a tough, tenacious mass that will resist blistering and cracking. It also increases the durability of the following coats of paint and varnish. It has one slight disadvantage, that of diminishing the luster of the finishing varnish, and hence it is not used for undercoats in carriage-painting, but this would be no drawback for carriage tops.

My advice therefore is (and I speak from experience): *use for roofs pure red-lead, mixed with pure raw linseed oil and a little dryer*. To darken the color, add mineral black (avoiding lamp or drop black), making as thick a mass as can be well spread with a brush. With this prime the top; and, when dry, follow at intervals with two or three coats of the same mixture and turpentine. Then give it the usual amount of filler, which ought to be rubbed down into the red-lead without touching the

canvas. Then finish it. No blistering will follow on the red-lead-painted top even in the sunniest weather, and neither will it crack,—providing, of course, that the painter is provided with the proper materials.

In regard to cost, the increase would not exceed 15 per cent. per top more, as compared with the cheapest paint known. L. MATERN.

BLOOMINGTON, ILL.



MONOGRAM: W. H. P.

HERE is an attractive monogram, designed by a noted New-York stationer, which combines the three initials of the name of Mr. Wilder H. Pray, the well-known ex-Secretary of the Carriage Builders' National Association.

HOW TO MAKE SURE THAT YOUR KEG-LEAD IS PURE.

WEST RANDOLPH, VT.

EDITOR OF THE HUB—DEAR SIR: Will you please inform me how to know pure lead from impure lead, or *vice versa*. I mean white keg-lead. I have some now that looks chalky when mixing it, and it is full of fine black specks, so much so that the lead looks gray instead of white. I once saw in *The Hub* something about how to detect impure lead, but I cannot find the number it was in. Will you please answer by mail, and oblige a subscriber.

E. A. K.

ANSWER.—We remember publishing some such test for lead a few years ago, but we fail to find it; and we imagine, if we did, that it would not prove of any great practical value to our correspondent, whose description of the keg-lead he has, seems sufficient to prove that it is not pure.

The only way to get the pure, if that is what you require, is to apply to some reputable color-manufacturer, and explain your wants. Pure white-lead is to be had, and at fair prices; but the reputation of the maker, rather than any chemical test we could suggest, should be depended upon.

Our Mr. Long, after reading your inquiry, replies as follows:

"There are many inferior makes of keg-lead. I am unable to inform your correspondent how to analyze the specimen he has, but the signs he speaks of seem to indicate that his is impure. Chalk, barytes, whiting, etc., are often used to adulterate it; but the worst thing in connection with the inferior keg-leads is, that they are often mixed in poor oils, such as fish oils, etc., and with cheap and fiery dryers added. The safest plan is to buy only the best, such as the Atlantic or Jewett's, which I have always found reliable, or the English 'B. B.' lead, which comes somewhat higher."

Mr. C. O. Wolcott makes some very pertinent remarks on the same general subject in his "Plain Talk with Practical Painters," which we reviewed in our last number, page 476. He says:

"Every practical painter will appreciate, at a glance, the truth of the following remarks as to the properties which a pigment must possess, to render it, under all circumstances, a desirable paint.

"It is not of the slightest consequence by what name it may be designated, or what chemists and professors may say of its component and constituent parts, or its property of resisting the action of certain gases, or its wonderful and never-before-heard-of 'chemical affinities.' All such talk is mere bosh, and is altogether impertinent to the question.

"A good paint *must* possess, *First*: The property of *opacity*,—that is, it must *cover* well; *Second*: It must work,—that is, spread, easily, smoothly and evenly under the paint-brush; *Third*: It must retain its color when exposed to sunlight, and not darken and discolor when *not* exposed to the light; and lastly, it must be as durable under exposure to sun and storms as it is possible for a paint to be from the nature of the mixture.

"Whatever paint possesses these properties in the highest degree is best, whether it be called lead, or zinc, or ochre, or whitewash, or buttermilk; and the writer contends that the least educated journeyman painter in the United States, who has served an apprenticeship to the trade, is better qualified to judge of the value of the materials which he uses, in respect to the good qualities enumerated above, than the most skillful chemist or learned professor. As a rule all this professor talk and certification is a trap to catch the unwary, and a help to foist upon the market some substance which will not stand upon its own merits."

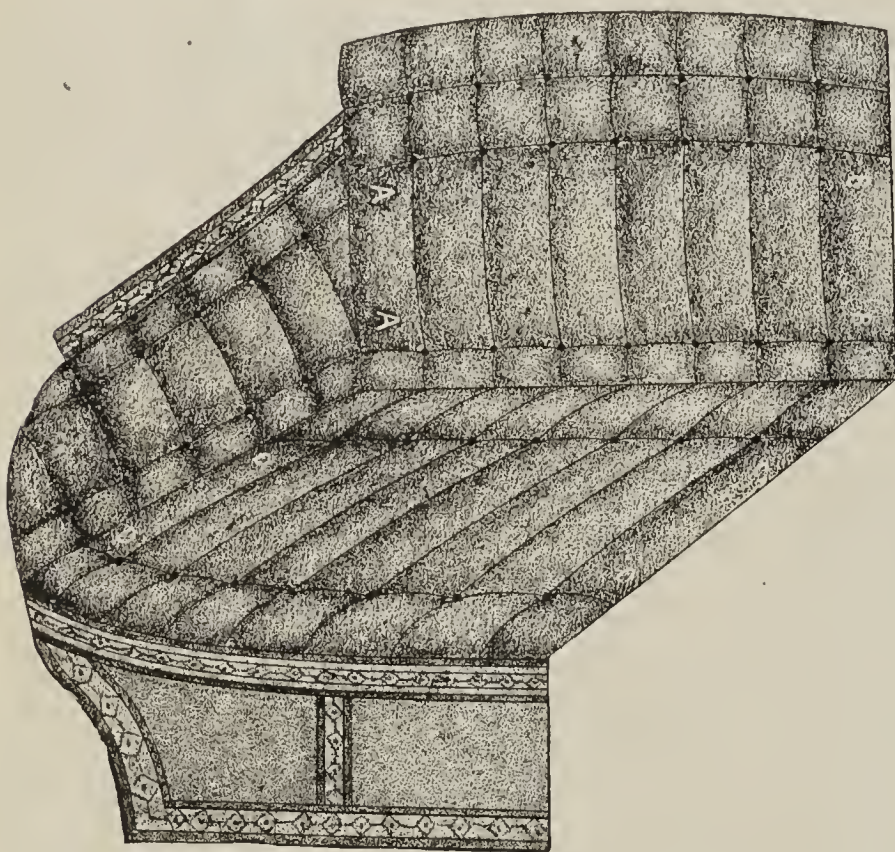
WHEN the war with Russia rendered bristles scarce and dear, commerce soon supplied brush-makers with vegetable substitutes in the shape of kitool fiber, coir fiber from palms, and Mexican fiber from the leaves of *Agave sisilana*. Pissava fiber, from the leaf-stalks of a South American palm, came in to supply bass-brooms, chimney-sweepers' brushes, and street-sweeping machines. Even split quills have been brought into requisition for brushes, and for white and dyed bristles we are not alone dependent upon the stiff hair of the hog.



THIRD ESSAY ON TRIMMING PHYSICIANS' PHAETON: NO PRIZE.

(By "Anonymous," of Philadelphia, Pa.)

I do not claim that this style of trimming is especially new, but my main object is to show what I consider the plan to be followed in order to make the springs work easily and secure the greatest degree of comfort. One thing in trimming is certain, *i. e.*, the more tufts or buttons we put in our work, the harder becomes the back or cushion, or whatever other part of the trimming it may be. I prefer this style for ease and comfort, and will now describe its make-up.



I will commence with the construction of the back. First, take one ply of buckram, and cut it the exact shape required. Have the frame of the required size, with heavy muslin or linen drawn tightly over it; and paste the buckram firmly to the muslin on the frame. Lay the back off as shown in the design, allowing $4\frac{1}{2}$ in. height for the top row of squares, 4 in. for the second row, and 3 in. at the bottom. The back being 21 in. high, this will leave your pipes $9\frac{1}{2}$ in. long. This should give a very comfortable back. I make some as high as 24 in.

Between the lines A and B, I make a pad, with a swell, so that the pipe rolls will lay over this pad, which will give it the proper swell, and act evenly on the springs underneath the back, which are put in the usual way. The other part is finished up soft. Avoid the stuffing-stick as much as possible.

This brings us to our quarters, which are made up on two ply of buckram, with a soft arm-rest, built, from the body up, the width of the broad-lace, as given in the design. If preferred, the quarters can be made up without the pad under the pipe rolls.

We now come to the most important part of the trimming, namely, the making of the spring cushion. My plan may differ from that followed by many others in the trade, for a great many do not care so long as they have the springs in the cushion. I have made them in many ways, but the following has proved the best. In my diagram you will see two rows of tufts, and my plan is to have my springs come inside the lines C and D, so as to avoid the tufting cord. If we run our tufting cord through our springs, we will have no spring cushion, and I have had enough of that style of cushion.

I bridle my springs down $3\frac{1}{2}$ in., taking about 21 springs of No. 13 wire, and sewing the springs down on buckram, two ply, well pasted. I bridle them together so that they will not get out of plumb. Before sewing my springs down, I cut my buckram $\frac{3}{4}$ in. smaller than the cushion bottom, and lay it off so that the springs will come inside the lines C and D. Before stuffing the top, I take another piece of buckram, two ply, the same size, and slip in on top of the springs. This

gives a flat surface for the hair to lie on, and makes the springs all ride evenly.

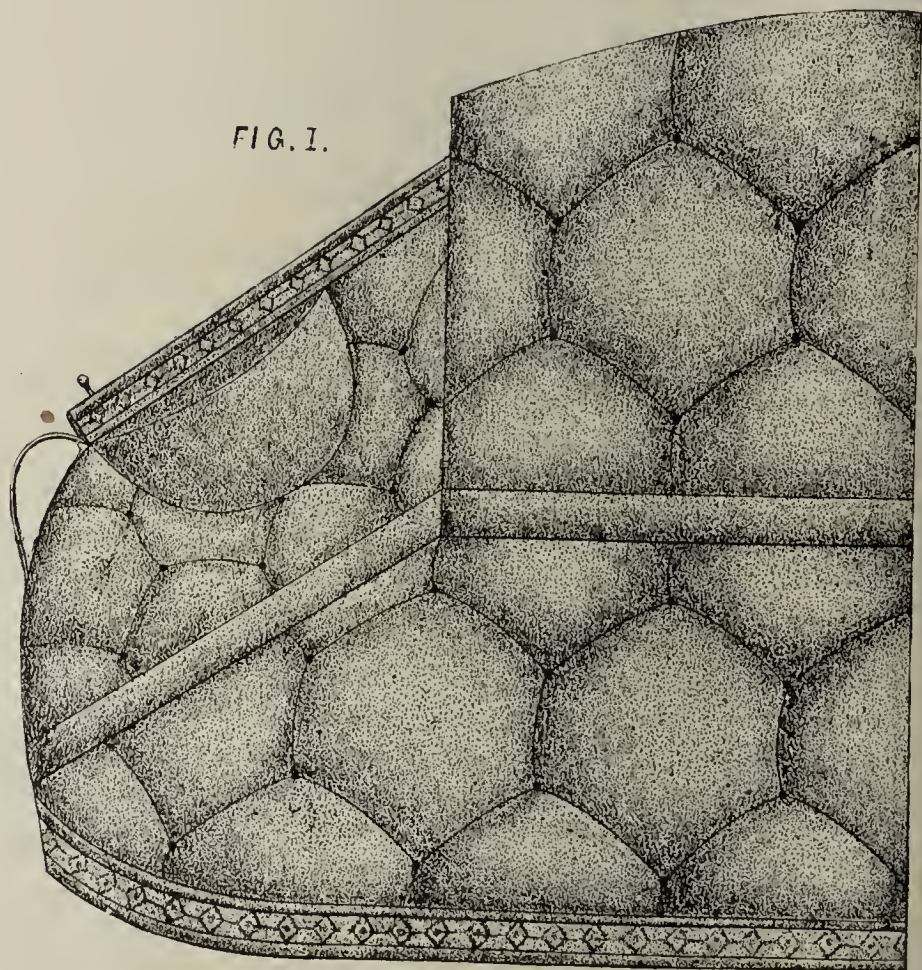
After the springs are fastened to the buckram, cover them over with muslin, sewing the muslin to the buckram foundation.

The above description will apply to any grade of light work, such as physicians' phaetons, cabriolets or buggies. I formerly had much trouble with cushions, and early learned that it is much more trouble to make a spring cushion than a spring back. In making a spring back you do not have to tuft through, because your spring work is all under your cloth work. By this method you avoid tufting through the springs. Some cushions will not admit of more than two rows of springs, and some three; and you must arrange them so they will avoid the tufting cord. I claim that a back and cushion made from the above design will assure more ease and comfort to the passengers than any others I know of, and especially the cushion. I have one Brougham trimmed for an invalid, with the back and cushion made in this manner, and it has given perfect satisfaction, and is used in preference to another trimmed in another style. This is simply because the spring work is not hampered by the tufting cord. The reader will find, as I have from 30 years' experience, that if you want springs in your work they must have freedom, and our M. Ds. particularly demand a comfortable and easy-riding back and cushion. Our house has a large trade in this line, and I have been compelled to study their comfort by trying different ways, and I have had no complaint wherever this manner of making the spring work has been followed.

ANONYMOUS.

TRIMMING DESIGNS FOR VICTORIAS, CABRIOLETS, ETC.

We present to our readers and the trade another design for back cushion and quarter for victorias, cabriolets and physicians' phaetons with pocket made to the side quarter. The back is made on single-ply buckram pasted on muslin drawn over a frame, allowing $1 \times 1\frac{1}{4}$ in. fullness, so as to make the back have an easy look and be soft. If leather, hammer the plaits down so that they will lay evenly and smooth.



The design illustrated in Fig. 1 has the pocket made of the same material as that used in the body-lining, fastened under the arm-rest at the top, and tufted in at the bottom as shown in the design. In making the pocket we use a piece of duck canvas, cutting it the shape we desire, lining the inside, and letting the outside lining turn over. Then stitch down, and, when the quarter is made up, fasten as in sketch. We are using spring backs and spring cushions.

Be careful and lay your foundation off accurately, and also the material you use, and do not force your work into shape, as it is often marred or entirely spoiled thereby. We have just finished one cabriolet and two victorias with these designs, and they look well and are very comfortable. It is well to remember that, the more buttons or tufts are put into the work, the more difficult in tufting down, and the greater the danger of destroying the spring of the hair. We discard the stuffing-stick as far as practicable, and use a small wire for the purpose of working the hair around the tufts or buttons.

We might furnish many additional designs of character similar to the foregoing, as they are in constant demand in our shop, and probably

n most others, but many of ours show but minor changes. We will content ourselves with giving one more in this number.

FIG. 2.

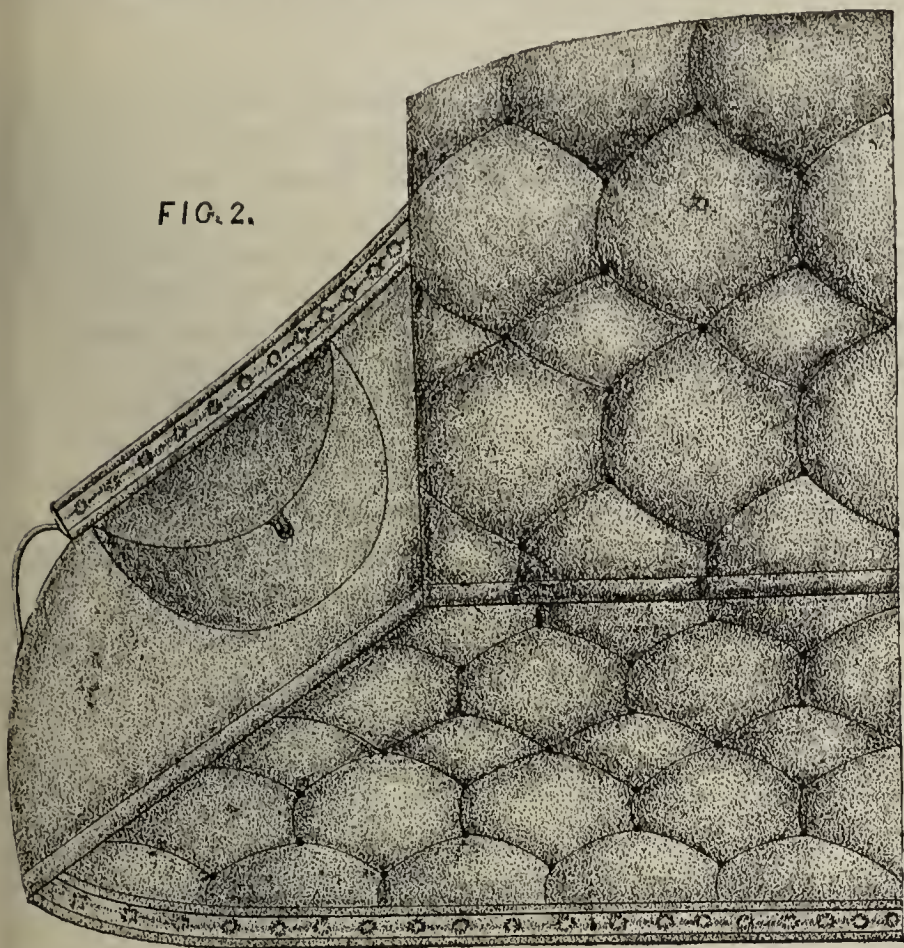


Fig. 2. This design is made up in the same manner as the preceding, excepting that it has plain quarters and the center row is in diamonds. The material should be green goat-skin, with broad, seaming and pasting laces. Use green tufts, and carpet to match. W. H. E.

DESIGNS OF COACH-LACES NOW POPULAR.

WE have received from Messrs. W. H. Horstmann & Sons, of 5th and Cherry-streets, Philadelphia, and 106 Grand-street, New-York, a highly attractive collection of coach-lace patterns, now popular, four of which are represented in the accompanying engravings.

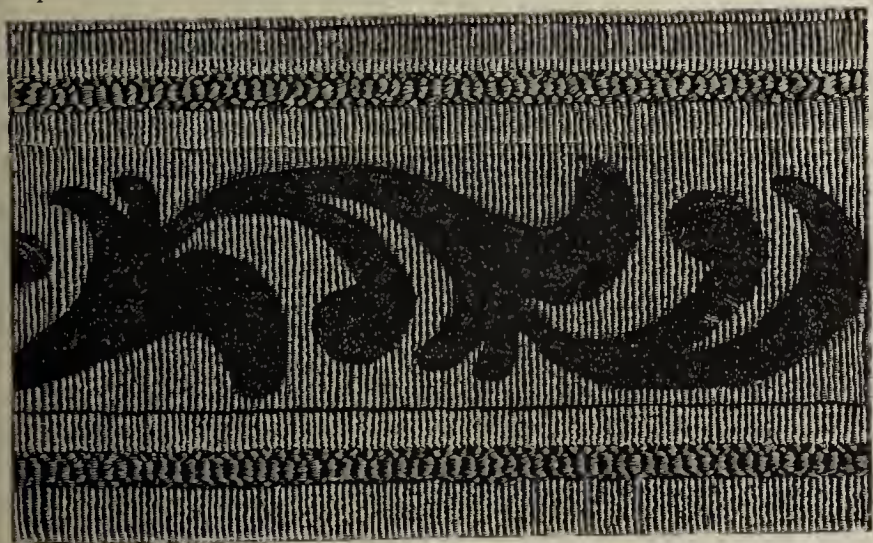


FIG. 1.

Fig. 1 shows a broad-lace, 2 in. wide, the design of which consists of a running vine executed in raised cut worsted, and known in the trade as "velvet lace." The color of the original is blue, in two shades.

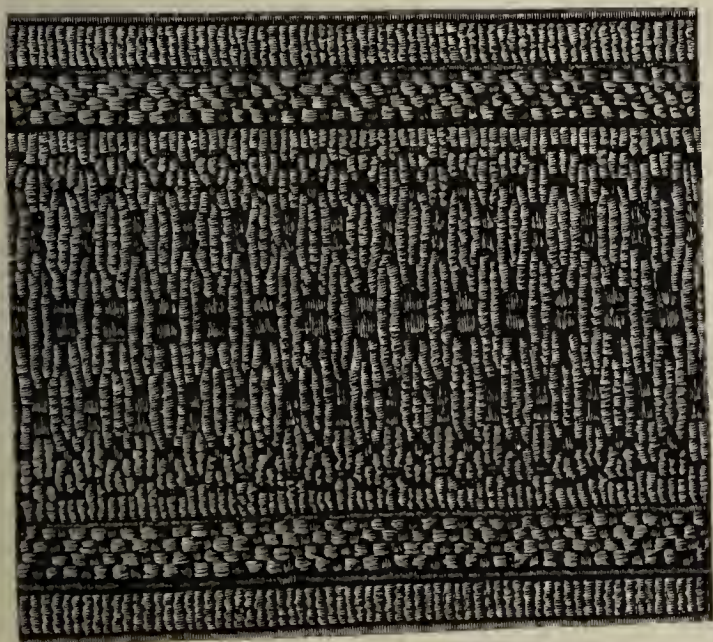


FIG. 2.

Fig. 2 shows a somewhat narrower lace, $2\frac{3}{8}$ in. wide, with a geometrical pattern down the center, edged with a stripe on either side.

The specimens before us include many colors, the most attractive having a dark green ground, with center figures of a lighter shade of green, and claret stripes. This, like the preceding, is a machine-made lace, but handwork could secure no firmer texture.

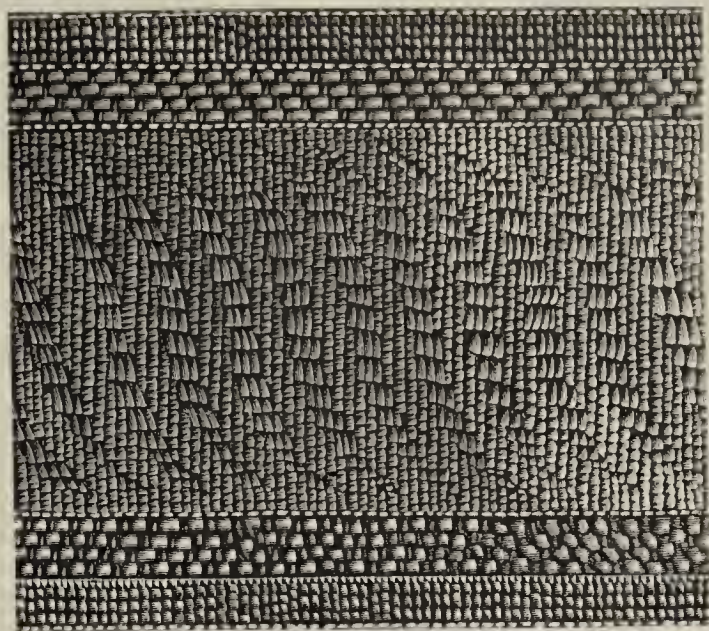


FIG. 3.

Fig. 3 closely resembles the last-named in design and is of the same width. It is shown in many colors, the most noteworthy having a dark green ground, with gold center ornamentation, and light green stripes. This is also machine-made, and so are nearly all our best coach-laces nowadays, excepting in the case of orders for a limited number of yards of some special design.



FIG. 4.

Fig. 4 is wider than any of the preceding, $2\frac{1}{2}$ in., and the pattern commends itself to us as being particularly worthy of general introduction. It is made in all colors, and many varieties are before us, including green in two shades, black and gold, dark green and gold, and dark blue and purple.

This firm has long been celebrated for the variety and beauty of its laces specially adapted to the needs of carriage-builders, which include not only all the latest and best patterns introduced by the French, English and German weavers, but also many new styles suggested by the special requirements of their customers.

HOW TO TEST GLUE.

AN article of glue which will stand damp atmosphere is a desideratum among mechanics, especially pattern makers. For this it should contain as little saline matter as possible. When buying the article venture to apply your tongue to it, and if it tastes salt or acid, reject it for anything but the commonest purposes. The same operation will also bring out any bad smell the glue may have. These are simple and ready tests, and are the ones usually adopted by dealers and large consumers. Another good test is to soak a weighed portion of dry glue in cold water 24 hours, then dry again, and weigh.

AN odd vehicle is driven about the streets of Baltimore. It is similar in shape to a New-England peddlers' wagon, and is painted red. The front bears the following legend: "Royal Umbrella Hospital. Broken bones and ribs re-set." The driver sits behind, occasionally blowing a melodious bugle to attract attention. When a job of sharpening or like work comes his way, he opens a little lid displaying a grindstone, which he operates by a treadle under the wagon.



TRADE GOSSIP OF THE PAST MONTH.

OUR complication with another namesake, *The Hub*, published in Boston, Mass., by some colored gentlemen, has been arranged to the satisfaction of all concerned. The Boston publication will hereafter be known under the title of *The Boston Weekly Hub*.

* * *

THE St. Louis Convention of the Carriage Builders' National Association was the chief event of last month, and is still the leading topic of discussion and gossip in the carriage trade. A full report of the proceedings appears in this number, and will be found well worthy of careful reading.

* * *

LAZIER, the swindler, has not found that entire peace in the seclusion the prison-cell grants, which he perhaps had some reason to expect. As reported on a subsequent page, he has again been called before the bar, on the charge of forgery, to which he plead guilty, and received a further sentence. He must begin to appreciate that the way of the transgressor is not all lamb's-wool.

* * *

EVERY dog has his day, and during the past sixty days the coachmen employed by our wealthy citizens have been having theirs. In one recent issue of a New-York daily, we noticed accounts of four young ladies who had eloped with their fathers' coachmen. The *Philadelphia Call*, referring to this extraordinary epidemic, says: "The novel of the future will begin: 'The full, bright moon was just silvering the tree-tops, when a solitary coachman, with a rope ladder under his arm, was seen wending his way, etc.'"

* * *

STILL a sixth bulletin regarding the "Osgood Wood-Filler Fraud," appears in this number, and merits the attention of every reader. It is just possible that the question of his guilt may heretofore have seemed doubtful to some of our friends; but any such doubts must certainly be laid aside after examining the batch of evidence received from the parties whose names he has used in connection with his bogus testimonials. He seems to have given the trade a rest during the past month, and we sincerely hope he has been led, by some means, to see the error of his ways, and to depart therefrom.

* * *

OUR editor, during the past month, has found ample occupation for his leisure half-hours in assisting to secure subscriptions toward completing the pedestal for the Bartholdi Statue of Liberty, presented by the people of France to the people of the United States, which now only awaits a suitable resting-place on Bedloe's Island, New-York Harbor, before lighting its electric lantern. Any reader of *The Hub* who feels inclined to contribute a dollar or more toward the \$125,000 required to complete the great work, will please forward, to this office, check made to the order of Geo. W. W. Houghton, Treasurer Special Committee of "Sons of the Revolution."

* * *

THE Technical School for Carriage Draftsmen and Mechanics, in this city, was opened promptly on Wednesday, October 3d, and is now in full running order, under the direction of Prof. John D. Gribbon as principal, with Messrs. Polya and Konrad as his assistants. The Corresponding Classes have also been started, and under conditions that promise even better success than last season. The Committee express the hope that proprietors will interest themselves to have classes formed among their employes, that they may not only be placed in a position to utilize the advantages offered by connection with the parent school in New-York, but also enjoy the benefits attending mutual endeavor. We heartily second this suggestion. The plan was tested last season among

the employes of the Columbus Buggy Co., and other prominent concerns, and gave ample evidences of the beneficent results thus to be obtained.

* * *

THE Secretary of the Carriage Builders' National Association deserves the highest praise for the energy with which he (assisted by Mr. Fitz-Gerald, editor of *Coach, Harness and Saddlery*) has executed the important task confided to him at the Convention in 1883, of securing reports from consuls and others officially representing the United States government in foreign countries, relative to the present and prospective demand in those countries for American carriages and carriage goods. The work was evidently carefully planned and organized; and the results of the inquiries, as set forth in a pamphlet just issued by the Association, promise to prove of the greatest possible interest and benefit to such of the trade, seeking a foreign outlet for their manufactures, as will take the time to duly study the forty detailed reports thus placed in their hands. A descriptive review of the pamphlet appears under "Trade News," in this number, which sufficiently suggests its immediate practical value.

* * *

THERE has been no material change in the business situation since our last month's report, and we expect none until the Presidential question has been finally settled, together with our future policy in regard to the tariff question, therein involved. What minor variations have occurred in the carriage trade seem favorable rather than otherwise. Orders for new work are reported far below the average, but there is unusual activity in repairing, which helps to keep the city shops well employed, and assures them that prompt realization of ready cash, now so acceptable. Several failures have occurred, as will be noticed under the heading of "Trade Embarrassments" in our Trade News department; but none of these have any special significance, and their effect is likely to be merely local. Our sleigh-makers are now busily preparing for the first snow, which we hope will come early this season and stay long with us, for that always means an influx of ready money in the cash-boxes of our Northern carriage-builders.

* * *

THE long-delayed report of the committee charged with the duty of investigating the apprenticeship system of the several States, and reporting a model form of indenture for general adoption by members of the Association, has now been made public, and seems likely to prove of great practical benefit to the trade, if its suggestions be duly seconded by the members. The full draft of the proposed new indenture is presented elsewhere in this number, and deserves careful study. Its simplicity is a leading recommendation; and we see no reason why, with such minor alterations as may be deemed necessary to suit individual cases, it should not come into general use. In its spirit, it seems to reflect the best modern ideas of American civilization on this much-vexed question; and we think its adoption by the trade might be expected to remove many difficulties now present. After reading it carefully, please let us know, through our "Critics' Corner," how it strikes you. Its framers were Messrs. Wm. D. Rogers, of Philadelphia, Chauncey Thomas, of Boston, and John W. Britton, of New-York.

* * *

JUDGE TRUAX'S recent decision that "skids," placed from a wagon at the curb, across the sidewalk to the door of a warehouse or store, are a public nuisance, forbidden by law, will astonish the whole community. So also will his assertion that the "Board of Aldermen cannot authorize a public nuisance." As for the use of "skids," the patient wayfarer of this city has become so accustomed to having his passage spanned by them, that their complete abolition would be likely to create a feeling of homesickness. If, for example, a pedestrian could go from Broadway to the North River without climbing through every other doorway, and dodging under horses' noses in the middle of the street, in order to circumvent the "skids," he would surely think he was in some other city. We have little fear, however, that the "skids" will vanish from our view. The nuisance is one of the most firmly established of our municipal attractions. Every few years some irritable person loses his temper and "kicks" against them; but though the law is always found to be on his side, the great mass of the community refrains from insisting upon its enforcement,—probably because so many of its members have "skids" of their own.

THE NEW-YORK CAB CO. SUSTAINED.

JUDGE LAWRENCE'S decision in favor of the New-York Cab Company's right to protection against the imitators of its style of vehicles is good sense, and we trust will be found to be good law also. The company has made a hard fight in the interest of the public, and has won it, and it is entitled to all the benefits which will come from its victory. Not only has it given us cheap cabs, but at the same time it has given us better cab service than this city ever before enjoyed. Its carriages are models of comfort and cleanliness, and we have yet to hear of a driver in its employ who has been uncivil or overreaching. The company does not ask for a monopoly of the business, but simply to be allowed to reap the full benefits of its own admirable policy. There is abundant room for competition. Any man who wishes to can start another company tomorrow; but he ought to do it without attempting to steal anybody else's thunder. The demand for cabs increases daily, as the public comes to realize their convenience and the reasonableness of the charges; and the present supply is far from sufficient to meet the present demand. A great deal of time is wasted now in trying to find one when wanted. They ought to be as thick as they are in London and Paris, where you cannot look in any direction without seeing one; and it seems now only a question of time when they will be here.

THE OSGOOD WOOD-FILLER FRAUD.

BULLETIN No. VI.

AN important feature of our last month's bulletin consisted of a collection of testimonials from leading carriage-builders, with which the Osgood Wood-Filler Fraud is accustomed to bait his prospective victims. We had two reasons for presenting these: first, to further illustrate his methods; and second, to learn positively whether these recommendations had any basis of fact, or were "made out of whole cloth." They evidently gave rise to many indignation meetings in the offices of those whose names were used; and the responses since received leave no possible doubt as to their falsity.

I.

Here are some of the denials which have thus been called forth:

MR. JOHN C. HARVEY, of Buffalo, N. Y., writes: "The Osgood Wood-Filling testimonial attributed to Harvey & Wallace is not genuine."

THE BROCKETT & TUTTLE Co., of New-Haven, Conn., through their Treasurer, Mr. Chas. B. Brown, write: "We have never given the Osgood Wood-Filler party named any recommendation or testimonial, and don't know as we have ever seen him."

MESSRS. J. M. QUINBY & Co., of Newark, N. J., write: "We never heard of the Osgood Wood Finish and Paint Co., and have never knowingly used any of their productions; and of course never authorized the publication of the letter you allude to."

MESSRS. WM. D. ROGERS, SON & Co., of Philadelphia, Pa., write: "We have never used the Osgood Wood-Filler, nor given the testimonial referred to, and neither have we any knowledge of the company."

MR. J. W. GOSLING, in Cincinnati, O., the pretended headquarters of the swindler, expresses his opinion briefly but conclusively, saying: "Big lie! There is no such firm here as Goslin & Co. and never has been."

THE LOUIS COOK MFG. Co., also of Cincinnati, O., through their Secretary, Mr. D. E. Allen, write: "There was a man here answering the description you give, and representing the same class of material; but we did not think that it amounted to anything, and consequently did nothing with him, and he had no authority to use our name in the matter, as we have never bought or used any of the goods you refer to."

THE COLUMBUS BUGGY Co., of Columbus, O., through their Mr. O. G. Peters, write: "Will simply say the testimonial referred to is a base fraud and forgery. Have never used the article, and know nothing about it. Please accept thanks for calling our attention to this matter, and we shall be pleased if you can suggest any way for us to rebuke the forger."

THE ABBOTT BUGGY Co., of Chicago, Ill., write: "We do not remember giving any such testimonial as you quote. We never had any of their goods that we remember of, and we do not know the Osgood Wood Finish and Paint Co."

MESSRS. E. M. MILLER & Co., of Quincy, Ill., write: "Referring to the testimonial attributed to us, we have to say that we have no record in our office of ever having bought any Wood-Filler from above parties, and no record, and certainly no recollection or knowledge, of ever having given our testimonial in its favor. We will write Messrs. Osgood & Co., and ask what authority they have for the above. We are anxious to know all about this matter."

MESSRS. J. B. BREWSTER & Co., of 25th-st., New-York, whose name is mentioned by many victims as signed to written testimonials exhibited by the swindler, write as follows: "Yours received, inclosing printed certificate

endorsing the Osgood Wood Finish and Paint Co. We have no recollection of so doing, and doubt if we did do so, as we do not believe in any wood filling except raw oil."

MESSRS. BREWSTER & Co., of Broome-st., New-York (Broadway and 47th-st.), whose name is also frequently mentioned, bear testimony to the forgery of any recommendation of the Osgood Wood-Filler pretending to bear their firm signature. They say: "We have never heard of the 'Osgood Wood-Filler' except through the columns of *The Hub*; have never given any certificate for it, and are not in the habit of giving certificates. You can quote us as pronouncing both the man and his statements as false."

II.

Messrs. Shaw & Barnett, the well-known carriage and sleigh-makers of Albany, N. Y., admit former acquaintance with the swindler now under review, and describe as follows the visit with which he honored them about two years ago:

ALBANY, N. Y., Sept. 12, 1884.

EDITOR OF THE HUB—DEAR SIR: We notice in this month's *Hub* some correspondence relative to a Wood-Filling swindler who is on his travels. He has evidently paid us a visit, as you will notice, by comparing the inclosed paper containing his receipt for the "Globe Carriage Finish," that the handwriting agrees almost exactly with your photo-engraved reproduction on page 411.

It is now about two years ago, we think, that a young man called on us, and tried to prevail on Mr. Barnett to purchase the inclosed receipt. He had any quantity of testimonials and references to show us, to supplement his clever way of explaining the merits of the article himself. He even showed small finished pieces which he carried. On finding that we did not think well enough of it to purchase, he insisted on leaving the receipt anyway, but exacted a promise from us to keep it confidential; and the next time he called, we were to pay \$5.00 or \$10.00 for it if we used it and it proved all right. We have never taken the trouble to try it since, nor has our friend called for his money, so we now turn it over to you.

Yours truly,

SHAW & BARNETT.

III.

The memorandum inclosed with Messrs. Shaw & Barnett's letter closely resembles, in general appearance, the Bittong receipt which we reproduced in our September number, and is written with the same blue aniline pencil and signed with the same name; but the address has been changed from 1201 Race-st. to 237 Canal-st., and the ingredients and their relative proportions are somewhat different, as will be noticed by comparing the two. Here is the Albany formula:

"GLOBE CARRIAGE FINISH.

Shellac.....2 ozs.
Potash.....8 ozs.
Glue (thin, light colored).....1 pound.
Dry Zinc.....4 ozs.
Rain Water.....1 gallon.

(Signed)

S. E. Walling,

237 Canal-st., Cincinnati, Ohio."

IV.

Under "Trade Gossip of the Past Month," appearing on the preceding page, we expressed satisfaction that we had received no recent reports of further doings by this party, and the hope that he had at last retired from the field. Later correspondence shatters this hope. Here, for instance, is a letter received from a subscriber in Long Island, N. Y., who requests that his name be withheld:

JERICHO, L. I., N. Y., Oct. 6, 1884.

MR. EDITOR—DEAR SIR: The W. F. Campbell you refer to in *The Hub* as the "Osgood Wood Filling Swindler" was at my shop last Friday, Oct. 3d.

He is the fellow, sure! He produced the signatures of nearly all my neighbor wagon-makers, and I can name them if necessary. He also showed me testimonials from the leading carriage-manufacturers of the country. He is a keen fellow, and should be apprehended soon, for he is not far away, and is probably still on Long Island. He answered precisely to the description as given in *The Hub*. I tell you, he fooled a great many around here on the north side of the Island. I think he is still close by.

"SUBSCRIBER."

V.

Here is another recent case that has been brought to our notice since preparing our last month's bulletin. It comes from our friend Daire, of New-Brunswick, N. J., who writes as follows:

NEW-BRUNSWICK, N. J., Sept. 15, 1884.

EDITOR OF THE HUB—DEAR SIR: A new patent swindler has made his appearance among the carriage-makers of this neighborhood, and our boss has been one of the victims.

The patent consists in a formula for making and using a wood-filler. He has a bottle of some sort of quick-drying, gummy stuff, which he applies to a spoke, and in a few minutes it of course dries. A very little space is sandpapered, and a comparatively smooth surface is gained with very little labor. He shows as a sample the stereotyped smooth and well-varnished piece of spoke or panel. His further stock in trade consists of a lot of supposed-to-be-genuine receipts for the formula given him by leading carriage firms of the Eastern States, together with

a lot of circulars, a good supply of cheek, an overwhelming lot of gab, and the following formula, which latter he does not show until he has secured five, ten or fifteen dollars, as the case may be :

"Gelatine.....4 ozs.
Potash.....8 ozs.
Oxide of Zinc.....4 ozs.
White Glue.....1 lb.
Shellac.....3 ozs.
Linseed Oil.....1 gal."

"Simply mix all the articles, put in dry can, and *let stand until dissolved*. Apply with brush, same as varnish, on bare wood, from two to three coats; sand-paper, and you will have a surface better, more durable and quicker than the old system of roughstuff and white-lead. The articles are dirt cheap, and"—Well, the swindler then makes his bow.

MORAL: Our employer has on hand, and has had for the last three weeks, a can of that stuff, with the following peculiarity: The oil has dissolved the potash, the oxide of zinc and the gelatine, but stubbornly refuses to do the same for the rest of the articles.

Beware of the P. F. F. A.: *i. e.*, the Patent Filler Formula Agent! Would it not be well for *The Hub* to show up the fellow. Mr. Henry Van Mires would like to see him commit *hari-kari*.

A. P. DAIRE,
Foreman Painter with Henry Van Mires, Carriage-maker.

STILL ANOTHER SWINDLER, WITH A PRETENDED "TOP DRESSER."

The Studebaker Bros. Mfg. Co., of South Bend, Ind., through their President, Mr. Clement Studebaker, not only disclaim all knowledge of the Osgood Wood-Filler Fraud, whose pretended testimonials are exposed in our preceding article, but they call attention to another swindler, who may need attention hereafter. They say:

SOUTH BEND, IND., Monday, Sept. 15, 1884.

EDITOR OF THE HUB—DEAR SIR: Your letter mailed on the 12th, inclosing testimonial purporting to have been given by us to the "Osgood Wood Finish Paint Co.," was received this morning.

The testimonial is a fraud. We know of no such company, and have never given such a testimonial. We are very careful in matters of this kind, giving testimonials only when fully assured that they are thoroughly deserved and the parties are unquestionably reputable.

We have also heard, from time to time, of a swindler in the West who has been selling a pretended top-dressing, in which he has claimed that we were interested; but we have been unable to catch him. We shall be glad to have you expose this new attempt at deception by an unwarrantable use of our name.

Truly yours, CLEM. STUDEBAKER, *Prest.*

We immediately responded to the above by requesting further information regarding the new swindler referred to, in reply to which we received the following particulars:

SOUTH BEND, IND., Oct. 1, 1884.

EDITOR OF THE HUB—DEAR SIR: Yours of the 24th came duly to hand. We have heard nothing from the top-dressing swindler very lately. The last word was concerning his operations at Kalamazoo and vicinity, but we neglected to make special file of the letters; and, as we do not now recall the names, we are unable easily to look up the correspondence.

The first operations of this party which came to our knowledge we learned of through a letter dated April 6, 1883, written by C. Brown, of Churubusco, Ind., which reads as follows:

"There was a party here a few days ago representing himself to be one of the Studebakers, of the firm of Studebaker & Brunswick, of South Bend, and selling a patent enamel or coach varnish of very superior quality, worth \$12 a gallon, and warranted to stand for two years. If not as represented, the Studebakers would refund the money. Of course, it being from the Studebakers, we supposed at once it was good, and the sample he had worked very nicely; but, on examining the gallon left after he was gone, it was found to be a poor quality of linseed oil."

There were others victimized in that part of Indiana by the same fellow about that time, not only by the sale of the so-called varnish, but by borrowing small sums of money on the strength of his pretended relations with us.

The character of his work in Michigan some months later was substantially the same, but, as the amounts involved were comparatively petty, no one seems to feel sufficient interest in the matter to follow up the swindler and secure his arrest.

The affair is a little old now, and we did not allude to it expecting you to take it in hand, though of course we have no objections to publicity about it if you should think it best. In case we hear anything further from the fellow, we will advise you at once. Very truly yours, CLEM. STUDEBAKER, *Prest.*

LAZIER STILL TIGHTER IN THE TOILS.

WE think Lazier, the swindler, must begin to appreciate that the way of the transgressor, though he found it comparatively easy for nine years, is painfully hard at the turning. Even the penitentiary walls of Belleville didn't prevent his former victim and energetic follower, Mr. L. N. Morrison, the Aylmer carriage-maker, from get-

ting in on him with his further charge of forgery. Here is Mr. Morrison's account of what occurred. He writes as follows, under date of Sept. 22d:

EDITOR OF THE HUB—DEAR SIR: By consent of the Grand Jury at Kingston, I obtained an indictment for forgery against Lazier, and they found a true bill.

On Tuesday last, at 2 P. M., he pleaded "not guilty," for the purpose of gaining time; but when his counsel learned all the particulars of the case, and how much information I had from you in New-York, through Mr. Huntington, he advised Lazier otherwise; and at 4 P. M. the latter recalled his first declaration and plead "guilty," begging for the mercy of the Court, on account of his wife and child.

The sentence pronounced was three years and one month, to run concurrently with his previous sentence in Simcoe, which time will expire on the morning of the 16th of April, 1887.

I telegraphed you the result on Tuesday, at 5 P. M., and instructed the Court reporter to send you a copy of the *British Whig* containing an account of the trial.

[Signed]

L. N. MORRISON,
of Aylmer, Ont.

The newspaper referred to by Mr. Morrison was duly received, and contained a column report of the trial and of Lazier's previous record, from which we quote the following:

Yesterday afternoon [Sept. 16] the trial of Mark R. Lazier, swindler, was continued and completed.

On May 1st, 1879, under the name of G. C. Wright, said to be a traveler for Baylis, Wilkes & Co., Montreal, he called upon L. N. Morrison, Aylmer, and sold him a bill of goods. Wright wished to draw on the house for \$50, traveling expenses, and upon producing a letter of identification and credit, signed "Baylis, Wilkes & Co.," Morrison endorsed the draft. Baylis, Wilkes & Co. had no such traveler in their employ, the letter of credit was a forgery, and Morrison was out \$50.

On January 11th, 1884, he was arrested in Belleville. He was also wanted in Simcoe, and as Mr. Morrison's father and family were ill, the Aylmer gentleman could not prosecute him. The Simcoe gentlemen took him in hand, and he was sentenced to three years in the penitentiary.

At the Court here, Mr. Morrison had an indictment laid against Lazier. His counsel, T. H. McGuire, Q. C., entered objections to procedure with the case, but they were overridden, and when Lazier was accused of having forged the letter of credit, he pleaded "guilty," and received a sentence of three years and one month, the sentence to run concurrently with that he is now serving.

Comment is unnecessary, further than to say that we find this second sentence a lenient one, when the long-continued crimes of the man are considered. We hope, however, that it will prove sufficient to lead Lazier to hereafter turn from the error of his former bad ways.

THE HUB DICTIONARY OF CARRIAGE TERMS.

BY THE EDITOR, ASSISTED BY F. B. PATTERSON, ALBERT KEHRL, JOHN D. GRIBBON, J. A. VAUTIER, H. M. DUBOIS, E. COMBY AND OTHERS.

BLACK-AND-TAN.—Slang (New-York) for yellow-paneled public Cab.

BLACK-MARIA.—Slang for Prison Van. Origin unknown.

FLYMAN.—The driver of a "Fly," *q. v.*

FOOT-BOARD.—(1.) Same as "Footman's-board," *q. v.* (2.) The horizontal part of the bottom of the driving-seat of a vehicle, on which the driver rests his feet.

KIBITKA.—A variety of Russian four-wheeled vehicle. See Turgenieff's novel, "Fathers and Sons."

NAGAÏKA.—Russian. A Cossack whip. See Turgenieff's novel, "Fathers and Sons."

NIGHT-HAWK.—Slang (New-York) for public Cab seeking passengers on the streets at night.

PAGE-BOARD.—Same as "Foot-board or Footman's-board," *q. v.*

PANE.—The end of a vice-man's hand-hammer at the other extremity from the face, having a rounded chisel edge, and used to dress imperfections in ironwork when fitting up in the vice.

PANE, TO.—A technical term used by carriage smiths, meaning to smooth over defective surfaces in metal work, by continued light blows with the pane end of the hand-hammer.

PULLMAN.—A drawing-room railway car, named after the American inventor, Geo. M. Pullman.

STANDARD.—(1.) Any iron or skeleton wood support for an outside seat of a vehicle. (2.) The ornamented scroll sides of a page-board or footman's-board.

STATION-FLY.—A Fly used for railway service.

TARANTASS.—A variety of Russian traveling carriage. See Turgenieff's novel, "Fathers and Sons."

TOE-BOARD.—The inclined board at the front of the driving-seat of a vehicle, on which the driver rests his toes.

TOE-RAIL.—The rail attached to the toe-board of a vehicle, on which the driver rests the ball of his foot.

TRAMWAY, OR TRAM.—Abbreviated from Outram, the name of the inventor of the so-called "Outram-way" or railway.

WHEEL OF KRONOS.—The ancient symbol of Kronos or Saturn. Donnolly, in his "Atlantis: the Antediluvian World" (pages 140, 141), supposes it to represent, "simply the cross of Atlantis, surrounded by its encircling ring."

EVERY CARRIAGE-BUILDER HIS OWN TEACHER.

It is rather depressing to consider how many second-grade carriages are turned out every year, which, at about the same cost-price, but with added taste in design and finish, could be raised to the first-grade and be made to bring from 10 to 25 per cent. better prices.

Every boss, however painstaking he may be, is sure to occasionally issue orders for a dozen-lot of vehicles of some ill-advised new design, which he becomes sick to death of before they are sold. After a mistake of this kind he is quite likely to fall back despairingly upon some old design that was popular season before last, only to discover that it has already been worked for all it is worth. The question where to draw the line between the old and tried, and the new and partly experimental, is often a solemn one, but it must be met face to face by the progressive builder at the opening of every new season, and must be dealt with cheerfully and confidently. How can such confidence be secured? Several roads are open to the modern American carriage-builder, including the following:

The first and most obvious duty is to study the tastes of the class of customers composing his individual clientage. He should familiarize himself as fully as possible with the uses to which his vehicles are put by these customers. He should learn what they like, and what they don't; and why they like this, and don't like that. He should give a fair hearing to all the complaints that are addressed to him, and try to seek some remedy. He should listen patiently to any and all suggestions that customers may present, as to variations in design and construction which appear to them desirable. Many an enterprising carriage-builder has caught inspiration from such criticisms and hints, though crude and sometimes exasperating in their mode of presentation. He should own a horse and vehicle of his own—more than one, if he can afford it; and test for himself any questionable experiments he may hazard. In a word, he should put himself in the place of each individual customer as completely as he can!

In the next place, the carriage-builder should keep a weather eye on what his competitors are doing, for every one of them can teach lessons to all the others in some particular, in case he is willing to take the stand or can be constrained to. Friendly relations with one's competitors are consequently desirable; and it will be found very helpful to such relations if one will early learn to *give*, in case he expects to *receive* in return. The carriage-builder should travel occasionally, especially to the leading trade centers, and when in cities he should make it a point to visit the parks and fashionable drives. He should also encourage his superintendent and foremen to travel for like purposes of observation, which will tend not only to suggest to them new ideas, but freshen up their old ones.

In the third place, he will do well if he utilizes all sources of printed information regarding his own trade, or business in general. We need hardly emphasize the fact that he should study the trade journals, for this is one of the most inexpensive and effective means of information offered to the carriage-builder of to-day, and the small contingent expense of less than \$25 a year will be sufficient to bring the whole number to his office desk, English and French as well as American. Any carriage-builder who tries to economize by cutting off from his motive power this pound of steam, is pretty sure to have his machinery run slower than its capacity warrants. One's inspirations often leap up from unexpected sources, and the constant student of any energetic trade journal is pretty certain to feel quickened to more thought and more energetic action.

In the fourth place, we think the repair department ought to be more of a school than it usually proves. That is a sort of place of resurrection for the carriage-builder's handiwork, where he is enabled, if he will, to separate the sheep from the goats. There, may be seen the points of excellence which have been proved and found not wanting; and there the defects uncloak themselves. It would be well for every carriage-builder to devote several hours each week to the study of his own work and that of others, as it presents itself after the wear and tear of actual use. You will often readily see that something is wrong, and it may be easy to remedy it; but a still more important duty, if one has any sense of responsibility, is to find out *why* it is wrong, and *how* to prevent the same error forever afterward. Every one knows that something is wrong when he sees an axle broken

short off; but to learn why it broke, and how to prevent a recurrence of such breakage in the future is much more difficult. Everyone knows something is the matter when he sees a varnished surface despoiled of its luster; but how few coach-builders have learned to tell whether ammonia fumes were the cause of the deviltry? Yet this is a much less difficult question than the previous one! Every carriage-builder feels grieved to see the roofs of his coupés and rockaways cracked, but most of them get cracked—and some of them horribly!—by the time they reach the repair shop; and no one, so far as we are aware, has found an absolutely sure cure for this serious defect in modern carriage-building, while the various causes are as yet but imperfectly understood.

In his repair shop every carriage-builder has his own technical school. But how few, comparatively, are the pupils who systematically attend that school, and intelligently study its object lessons!

THE SKID.

[See Judge Truax's recent decision regarding "Skids," reported under Trade Gossip, page 554.]

THE man who invented the skid was—to use the language of the wicked—"no slouch." If you admire the talents of him who has caused two blades of grass to grow where only one grew before, what shall you think of him who has caused two small sticks of wood to solve the darkest problems of transportation and to knock the rights of man into a cocked hat? Before the days of the skid, a truck only reached half-way across an average street, and a negro porter ate his bread and molasses in the sweat of his brow. It was back your cart up to the gutter and carry in your goods on your shoulder. Now, thanks to this little invention, the truck reaches all across the street and sidewalk, and as far back into the adjoining warehouses as is desired, while the jolly and obese porter transports the freight from one place to the other by a tap from his little finger. It is the pedestrian who works now. Getting a cargo of goods from the truck into the warehouse, or the reverse, resolves itself into a simple question of making the pedestrians get out of the way. Back up your cart, hitch on your well-greased skid, station a porter at some convenient spot to make the walkers "jump lively," and the thing is done. The goods are nicely stowed away, and nobody has done any work and nobody feels fatigued except the casual passerby. The truckman and the porters are as fresh at nightfall as in the morning, while the wayfarers who have assisted them during the day lie home on sofas in a crippled and exhausted condition, bathing their limbs, perhaps, in alcohol, and moaning over the severity of their toil.

Stand at the corner of one of our down-town streets, and look along the sidewalk! As far as the eye can reach you will see sober citizens jumping up and down like pop-corns in a popper—and for the same reason, because they are having a red-hot time of it! This is the skid at work. You will see long serpentine lines of beaver hats winding in and out between the sidewalk and the middle of the street. These peculiar modes of locomotion are inspired by the skid. If you see eight or ten street-cars stuck fast together, and an excited mob of angry men surrounding them and rending the air with shouts and curses, you will find at the bottom of it all—our little friend, the skid.

Walk through the street yourself and observe how you, too, will hop up and down, and wind in and out, and step ankle-deep in mudholes, and dash your foot against a stone. You, too, will be shouted at by gruff voices if you don't go through your gymnastics in a sufficiently expert manner, and your calves will be occasionally prodded with a gauging-stick to hurry you along. If you have ever had your foot caught in a railway track and seen the train thundering along to your destruction, you may naturally think that you have felt genuine terror; but you know nothing about it until you have had your foot caught in a skid, with the leering porter standing at the top of the incline, holding a barrel of whiskey lightly by the rim with his thumb and finger and ready to let it slide at any moment. Anybody who has experienced both kinds of death will tell you that it is far better to be struck by a locomotive than by a barrel of Kentucky rye, 40 per cent. above proof.

When you have finished your walk and reached a place of safety, do not give way to your feelings, but look back over your path and enjoy the picturesque spectacle of the long lines of negro porters sitting in the sunny doorways, the truckmen loafing on the carts, the casks and boxes sliding down the skids and into stores almost without human aid, while other poor pedestrians leap, hop, twine, twirl and skip in the far perspective. Observe what a successful labor-saving machine the skid is; how it deprives nobody of his situation, reduces no workman's wages, and causes no strikes; how it simply relieves a lucky lot of fellows from their share of the primeval curse, and keeps the rest of mankind so busy that they actually haven't time to quarrel with the unjust distribution. Then, limp home, and consider how it doth bestride the narrow sidewalk like a colossus.—From DR. ELY'S "*Cats, Cooks and Cartwheels.*"

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING SEPTEMBER, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office during the month of September, 1884 :

SEPTEMBER 2d, 1884.

Axle Lubricator.....	{ W. W. Rosensteel ¹ and F. L. Shal-	
“ “	lenberger.....	Pittsburgh, Pa.
“ “	J. T. Young.....	Vincennes, Ind.
Buggy Cover.....	E. Bradley	Trumansburg, N. Y.
Carriage Step.....	J. Pendergast.....	New-Haven, Conn.
Vehicle Fifth-wheel.....	{ J. Hough and E. Spencer, ²	
“ “	Lancaster, Wis.	
Rein-holder	{ G. D. Goodell and T. B. Bent,	
“ “	Middletown, Conn.	
Vehicle Hub-band	W. Gardner ³	Lancaster, Ohio.
Thill Support for Vehicles.....	J. V. Reams.....	Burlington, Kan.
Vehicle Brake.....	A. E. Herman ⁴	Ravenna, Ohio.
Vehicle Running-gear.....	T. J. Allison.....	Bingham School, N. C.
“ “	E. L. Bennett.....	Binghamton, N. Y.
“ “	J. P. Smith ⁵	Rushville, Ind.
Vehicle Spring	J. M. Bromley ⁶	Plattsburg, N. Y.
“ “	F. A. Isham.....	“ “
Vehicle, Two-wheeled.....	F. Schelp	Baldwin, Mo.
Removable Runner for Vehicles.....	M. Deetz.....	Philadelphia, Pa.
Wagon-body Fender.....	C. L. Hanbeil.....	Waverly, Ohio.
Wagon Jack	L. F. Weeks.....	Hyde Park, Ill.
Wagon Seat.....	A. Miller.....	North Adams, Mass.
Spring Wagon.....	{ D. Buckler and E. N. Pelyer,	
“ “	Ionia, Mich.	
Wagon Spring and Gearing.....	J. Allan.....	Carrolton, Miss.

SEPTEMBER 9th, 1884.

Wagon End-gate.....	C. Hotz.....	Chicago, Ill.
Vehicle Fifth-wheel.....	J. McEntee.....	Covington, Ky.
Harness-trace Supporter	M. E. Lasher	Champaign, Ill.
Horse-hitching Device	J. Findlay	Oswego, N. Y.
Carriage Hub and Axle	J. F. Walter, Jr.....	Brooklyn, N. Y.
Jump-seat.....	C. H. Hutton.....	Baltimore, Md.
Carriage-door Latch	J. Kopcsay.....	New-York, N. Y.
“ “	J. Kopcsay.....	“ “
Rein-holder	C. A. Dougherty.....	Clyde, Minn.
“ “	C. Pentz ⁷	Canton, Ohio.
Rein Support.....	E. A. Hoyt.....	Lebanon, Ill.
Vehicle Shaft Support.....	{ J. J. & D. Ellsworth and M. Rogers,	
“ “	Riverdale, Mich.	
Carriage Thill.....	{ G. J. Frey, I. Heffner and J. S. Mil-	
“ “	ler.....	Nova, Ohio.
Wagon Jack.....	W. H. Bruce.....	Marlborough, N. H.

SEPTEMBER 16th, 1884.

Carriage Shifting-rail Attach-	{ W. B. C. Hershey.....	Columbus, O.
ment	A. A. Williams	Sterling, Ill.
Wagon End-gate	J. Maris ⁸	Columbus, Ohio.
Vehicle Hub.....	J. Maris ⁹	“ “
“ “	J. Maris ¹⁰	“ “
“ “	G. Utley ¹¹	Chapel Hill, N. C.
Vehicle Journal and Box	P. Hamel	Houghton, Mich.
Thill-coupling	T. A. Mayes.....	Phillipsburg, Pa.
“ “	W. S. Shanahan.....	East Chatham, N. Y.
Side-spring Vehicle.....	Z. M. Howell.....	Salida, Cal.
Vehicle Spring.....	C. W. Saladee.....	Torrington, Conn.
“ “	C. W. Saladee.....	“ “
“ “	C. W. Saladee.....	“ “
Two-wheeled Vehicle	{ E. P. Hincks and G. H. Johnson,	
“ “	Bridgeport, Conn.	

SEPTEMBER 23d, 1884.

Buggy Body	M. Y. Buck ¹²	Crawfordsville, Ind.
Thill-coupling	B. Fahrney.....	Hagerstown, Md.
“ “	G. E. Smith.....	Newark, Ohio.
“ “	H. Temple.....	Grand Rapids, Mich.
Vehicle Drag-brake.....	C. Trim ¹³	Houghton, Mich.
Device for turning vehicles out	{ T. H. Macdonald, San Francisco, Cal.	
of car tracks	F. P. Stone.....	Chicago, Ill.
Storm-protector for Vehicles.....	H. S. Nelson.....	Clear Lake, Iowa.
Wagon Running-gear.....	G. F. Thompson.....	Oshkosh, Wis.

¹ Assignors to Oliver Bros. & Phillips, same place.

² “ of one-third to L. J. Arthur, same place.

³ Assignor of one-half to C. H. Neal, same place.

⁴ “ of one-half to H. W. Riddle, same place.

⁵ “ of one-half to J. Carroll, same place.

⁶ “ to W. E. Smith, same place.

⁷ “ to C. W. Yoke and L. H. Highley, same place.

⁸ } “ to S. N. Brown & Co., Dayton Ohio.

¹¹ } “ of one-half to J. S. Carr, Durham, N. C.

¹² “ of three-fourths to D. A. & W. A. Roach and B. F. Gillespie, same place.

¹³ “ of one-half to G. P. McFarlane, same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.

CRITICS' CORNER.

ORNAMENTATION AS APPLIED TO STREET CARS.

EDITOR OF THE HUB—DEAR SIR: An article with the above title occupies a prominent position on the first page of the July number of the *Blacksmith and Wheelwright*; and, to my surprise, has been reprinted, without comment, in the September number of the *National Car Builder*. I find it so filled with inaccuracies that I take the liberty of calling your attention to some of its most unfortunate misstatements, in order that no *Hub* reader, at least, may be misled by them.

The writer first refers to painted imitations of inlaid woods, and says:

“A correspondent from St. Louis asks: ‘How is the work called “imitation inlaying” done, and is it a cheap, quick and easy method of ornamenting car panels?’ The imitation of inlaid woods has become quite popular among some of the painters in car-shops, it being a simple and quick means of filling up a panel with fancy designs.”

Now, as a matter of fact, the painting of such “imitation inlaying” has not become “quite popular among any of the painters in car-shops,” and for the very good reason that the only successful process is patented, and none but the patentee has any authority to use it. Attempts have been made in this direction for many years past, and some of these have been very cleverly done by a few first-class artists; but the process was never reduced to such a form that it could be generally utilized in the car-shop, as an inexpensive decorative science, until Mr. J. Millward Wade, who has charge of the decorative department of the car works of the John Stephenson Co., in this city, invented his new process known as “Wade’s patent process of imitating inlaid woods and marbles;” and this process has alone been employed thus far by the Stephenson Co., specimens of whose cars, containing work by Mr. Wade, may now be seen on the surface street-cars of the Sixth-avenue, Second-avenue, and 42d-street lines in New-York City; the Tompkins-avenue, of Brooklyn, and some of those in Baltimore and Pittsburgh, all of which were built by the Stephenson Co., and all of which were ornamented by Mr. Wade.

An attempt is next made by the same writer in the *Blacksmith and Wheelwright* to give the *modus operandi*, and here is what he says:

“To do this work, select the whitest wood possible—white holly—for the panel in the first place; then, cleaning and smoothing it nicely with very fine sand-paper, put on a good coat of French shellac varnish, sufficient to partly fill the pores in the wood; begin the running in of vines, leaves and buds, or whatever is desired, using any color preferred, mixed with gum water (virtually water-color), with the usual ornamenting pencils, until the design is complete. Let it dry, which will not take long; then with black-walnut stain, or black, mixed with varnish, oil and turpentine, go carefully over the whole panel, flowers, vines and all, being careful not to run over the moldings around it. Allow the stain to dry; then, with a soft sponge and water, wash off the gum or water-color paint, which will be found to soften easily and come off, leaving the figure clearly defined, with neat and true edges in white holly upon the walnut ground. When all is cleaned, varnish the work as usual.”

I pity the poor embryo painter who should waste his time in trying to wash off gum water through a coating of “varnish, oil and turpentine,” and over a single coat of shellac. But this is only one mistake, where all is wrong. In fact, the entire directions are so completely erroneous as to be merely a burlesque. By this process, it would be necessary, in order to make the work successful, to employ a good designer, a good pencil hand, and a good grainer. This would never do for general introduction. Mr. Wade’s method, on the other hand, reduces the art to a simple mechanical process that can be applied by any fair painter, and it assures work of the greatest beauty, such as that shown in connection with the car exhibits of the Stephenson Co. at the Railway Exposition in Chicago a year ago, when it was universally admired as the finest specimen of this class of work ever seen.

The same writer, in the same blundering way, then follows with a most anti-American statement about roughstuff. He says:

“A correspondent from London, England, wants to know if the street cars in New-York are painted in the same manner as the steam cars described in our trade journals.

“The answer is, No! There is a difference. Most steam cars are rough-stuffed and rubbed, while such a thing is seldom thought of in a street-car shop. A coat of priming—possibly white-lead and oil—two coats of white having but little oil, then the color; next, color and varnish, striping, ornamenting and lettering, and two coats of varnish complete the work on the outside; the inside being in most cases fancy wood, is varnished with three coats of light-colored varnish. The pedestals and wheels get two coats of some cheap oil paint, such as Grafton paint, although the former are sometimes painted the color of the sunk-bottom.”

This last is as bad as possible, and is particularly unfortunate for the reason that it would give so bad an impression to any prospective foreign purchaser of American cars, which now find their way to all parts of the world, and give such excellent satisfaction. It is absolutely untrue in all its statements. All our leading car-builders do use roughstuff, with the single exception of the one house named, *i. e.*, Messrs. Feigel & Co., of New-Utrecht, L. I., N. Y., who make a specialty of cheap cars.

In concluding, I would say that only a blacksmith or a wheelwright could have written such a blundering article as the one I have thus imperfectly reviewed; and on this ground I suppose we will have to excuse him.

NEW-YORK, Sept. 29, 1884.

WM. B. LONG.

DINNER-HOUR.

"A little nonsense, now and then,
Is relished by the wisest men."

DR. HOLMES ON WHEELS.

DR. OLIVER WENDELL HOLMES, of Boston, author of "The One-hoss Shay," and of numerous other poems and novels which still better deserve to keep his name green forever in the affectionate remembrance of every American, is—as the reader is no doubt aware—an Honorary and highly honored member of the Carriage Builders' National Association. And if he had happened to be the most active of all its Active members, he could not adapt his similes more spontaneously and accurately from the carriage trade, or, indeed, more profusely, as we have recently had occasion to notice while reading two admirable novels of his, "Elsie Venner" and "The Guardian Angel," which, next after Hawthorne's masterpieces, we should be most loath to strike off from the pitifully short list of first-class American fiction.

Every carriage-bulldozer, before he takes his last ride, in that most imposing and solemn of all his productions, ought to try to devote

of the plebeian breed, thick at every point where he should be thin, and thin at every point where he should be thick, is not one of those noble objects that bewitch the world." [For example, see party illustrated on this page.—ED.]

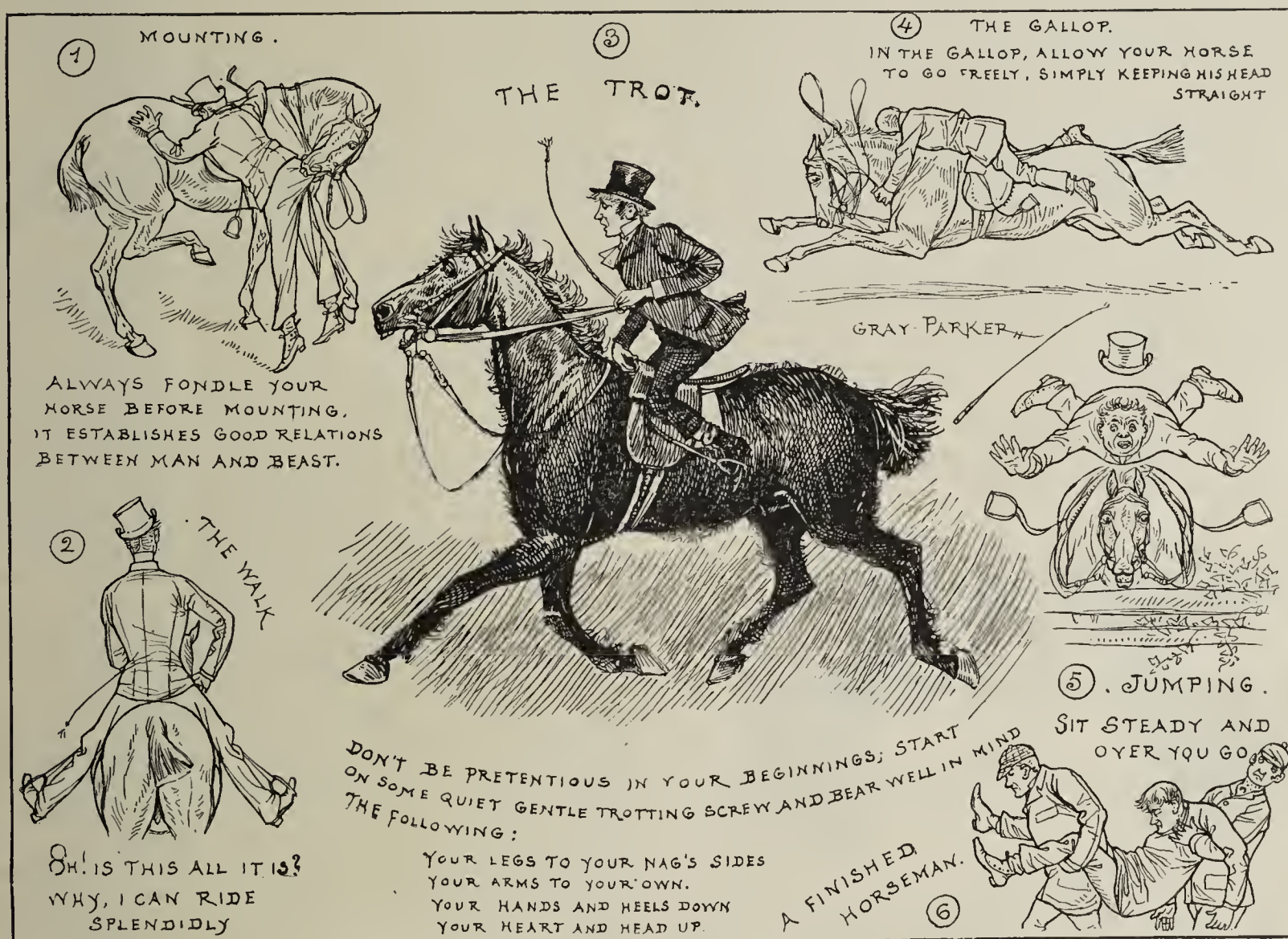
—"The best horsemen outside of the cities are the unshod country-boys, who ride 'bare-back,' with only a halter round the horse's neck,—digging their brown heels into his ribs, and slanting over backwards, but sticking on like leeches, and taking the hardest trot as if they loved it."

—"It is very hard to be interrupted just as we are winding up a string of propositions with the grand conclusion which is the statement in brief of all that has gone before: our own starting-point, into which we have been trying to back our reader or listener as one backs a horse into the shafts."

—"The Major had the never-failing predilection for showy switch-tailed horses that step high, and sidle about, and act as if they were going to do something fearful the next minute, in the face of awed and admiring multitudes gathered at mighty musters or imposing cattle shows."

—"Gray 'Lady Suffolk,' queen, in her day, not of the turf but of the track,—extending herself till she measured a rod, more or less, skimming along within a yard of the ground, her legs opening and shutting under her with a snap, like the four blades of a compound jack-knife."

—"The movements of animals are so much quicker than those of human beings commonly are, that they avoid blows as easily as one of us steps out of the



TRIBULATIONS OF THE AMATEUR HORSEMAN.—By GRAY-PARKER. From "LIFE."

[For description, see sixth selection from Dr. Holmes's novels, on this page.]

one cheerful half-holiday to each of these books; and, to help give him a hankering after them, we reproduce below some of the paragraphs, above referred to, which suggest the sympathy and intimate acquaintance of the genial doctor with the mechanical trade to which our magazine is devoted, and to whom, we should not forget to add, *The Hub* is indebted for its characteristic name, as is explained on the title-page of our every issue.

Here, then, are the extracts we copied while reading the two novels above referred to:

* * *

—"This body in which we journey across the isthmus between the two oceans is not a private carriage, but an omnibus."

—"It isn't everybody that can ride to heaven in a C-spring shay, as my poor husband used to say; and life's a road that's got a good many thank-you-ma'ams to go bumpin' over, says he."

—"To think of seeing her *barouching* about town behind a pair of long-tailed bays and a coachman with a band on his hat, while she was driving herself about in a one-horse carriage."

—"She was ten years younger as a bride than she had seemed as a lone woman. One would have said she had got out of the coach next to the hearse, and got into one some half a dozen behind it."

—"I tell you, when a doctor that's once started right lives among sick folks for five-and-thirty years, as I've done, if he hasn't got a library of five-and-thirty volumes bound up in his head at the end of that time, he'd better stop driving round, and sell his horse and sulky!"

—"A common New-England rider with his toes turned out, his elbows jerking, and the daylight showing under him at every step, bestriding a cantering beast

way of an ox-cart. It must be a very stupid dog that lets himself be run over by a fast driver in a gig. He can jump out of the wheel's way after the tire has already touched him."

—"Whenever the Doctor's narrow sulky turned in at a gate, the toiling native, whatever he was doing, stopped and looked up at the house the doctor was visiting. Oh, that narrow sulky! What hopes, what fears, what comfort, what anguish, what despair, in the roll of its coming or its parting wheels! At every season, the narrow sulky rolled round freighted with unmeasured burdens of joy and woe."

—"Major Rowens knew a neat, snug hoof, a delicate pastern, a broad haunch, a deep chest, a close ribbed-up barrel, as well as any other man in the town. He was not to be taken in by your thick-jointed, heavy-headed cattle, without any go to them, that suit a country parson,—nor yet by the 'gañted-up,' long-legged animals, with all their constitutions bred out of them, such as rich greenhorns buy and cover up with their plated trappings."

—"It makes men imperious to sit a horse; no man governs his fellows so well as from this living throne. And so, from Marcus Aurelius in Roman fringe, down to the 'man on horseback' in General Cushing's prophetic speech, the saddle has always been the true seat of empire. The absolute tyranny of the human will over a noble and powerful beast develops the instinct of personal prevalence and dominion; so that horse subduer and hero were almost synonymous in simpler times, and are closely related still."

—"What we mean by 'New-England aristocracy' is merely the richer part of the community, that live in the tallest houses, drive real carriages (not 'kerridges'), kid-glove their hands, and French-bonnet their ladies' heads, give parties where the persons who call them by the above title are not invited, and have a provokingly easy way of dressing, walking, talking and nodding to people, as if they

felt entirely at home, and would not be embarrassed in the least if they met the Governor, or even the President of the United States, face to face."

—"The Major had no objection to holding the reins in a wagon behind a slouching, listless beast, with a strong slant to his shoulder and a notable depth to his quarter, and an emphatic angle at the hock, that commonly walked or lounged along in a lazy trot of five or six miles an hour; but, if a lively colt happened to come rattling up alongside, or a brandy-faced old horse-jockey took the road to show off a fast nag, and threw his dust into the Major's face, would pick his legs up all at once, and straighten his body out, and go off into a three-minute gait, in a way that 'Old Blue' himself need not have been ashamed of."

—"Country doctor,—half a dollar a visit,—ride, ride, ride all day,—get up at night and harness your own horse,—ride again ten miles in a snow-storm,—shake powders out of two phials,—ride back again, if you don't happen to get stuck in a drift,—no home, no peace, no continuous meals, no unbroken sleep, no Sunday, no holiday, no social intercourse; but one eternal jog, jog, jog, in a sulky, until you feel like the mummy of an Indian who had been buried in the sitting position and was dug up a hundred years afterward."

—"If this young doctor once got into the *wide streets*, he would sweep them clear of his rivals of the same standing; and as I was getting indifferent to business, and old Dr. Kilham was growing careless, and had once or twice prescribed morphine when he meant quinine, there would soon be an opening into the doctor's Paradise—the *streets with only one side to them*. Then I would have him strike a bold stroke,—get up a nice little coach, and be driven round like a first-class London doctor, instead of coasting about in a shabby one-horse concern, and casting anchor opposite his patients' doors like a Cape-Ann fishing-smack."

—"The Doctor kept three or four horses, sometimes riding in the saddle, commonly driving in a sulky, pretty fast, and looking straight before him, so that people got out of the way of bowing to him as he passed on the road. There was some talk of his not being as long-sighted as other folks, but his old patients laughed and looked knowing when this was spoken of. The Doctor knew a good many things besides how to drop tinctures and shake out powders. Thus, he knew a horse, and, what is harder to understand, a horse-dealer, and was a match for him."

—"If that primitive physician, CHIRON, M. D., appears as a Centaur, as we look at him through the lapse of thirty centuries, the modern country-doctor, if he could be seen about thirty miles off, could not be distinguished from a wheel-animalcule. He *inhabits* a wheel-carriage. He thinks of stationary dwellings as Long Tom Coffin did of land in general; a horse may be well enough for incidental purposes, but for a 'stiddy' residence give him a 'kerridge.' If he is classified in the Linnaean Scale, he must be set down thus: Genus *Homo*; Species *Rotifer infusorius*,—the wheel-animal of infusions."



NEW-YORK CITY.

"FOSTER'S WHEEL SONGS."—A handsome illustrated volume entitled "Wheel Songs," by S. Conant Foster (price \$1.75), is announced by White, Stokes & Allen, publishers, of this city.

"THIS COUNTRY CANNOT STOP!"—"This country cannot stop! The greater the check to constructive enterprise now, the greater the activity must be in one, two or three years."—*Edward Atkinson*.

J. K. O'BRIEN, carriage-maker, of 161 E. 83d-st., New-York, reports business "fair." He finds his present shop too small for his requirements, and proposes soon to take new and large quarters at 161 E. 85th-st.

BUSINESS FAILURES.—The commercial agency reports indicate that failures are still plentiful in the Pacific States, in Canada, and in New-York City, but in other sections of the country they are rather below the usual average.

"SATAN'S COACH" (*L'Equipage du Diable*), and the "Mystery of the Omnibus," are the somewhat alluring titles of two French novels by F. du Boisgobey, which may possibly interest some of our readers. No, we haven't read them ourselves.

"IT'S AN ILL WIND," ETC.—"Upon the misfortunes of railway owners we may predicate the past and present and also the future prosperity of the farmer; and upon the prosperity of the farmer we may also assume the future prosperity of the manufacturer, because their interests are identical."—*Edward Atkinson*.

A CHANCE FOR ALL.—Every carriage journeyman or apprentice in the United States who desires to extend his technical knowledge, has now a ready and inexpensive means of doing so, at his own fireside, by joining one of the corresponding classes connected with the "Technical School for Carriage Draftsmen and Mechanics" in New-York City.

TECHNICAL INSTRUCTION IN ENGLAND AND CONTINENTAL EUROPE.—The "Second Report of the Royal Commissioners on Technical Instruction," Vols. I and II, has just been received by Prof. Gribbon, as a contribution to the Technical School library. We have taken pleasure in examining these, and find them a storehouse of valuable information.

CHANGE OF MANAGEMENT.—Mr. Alex. V. Fraser succeeds Mr. Haven in the New-York Sarven Wheel Co., which, as the trade is aware, is the New-York depot of the Royer Wheel Co., of Cincinnati. Mr. Haven is well and widely known in the trade, and his retirement will be regretted by his friends. Mr. Fraser has our cordial wishes for his success, and we have no doubt he will reap his share of the trade.

THE NEW-YORK CITY POST-OFFICE was thoroughly examined recently by a committee of Government experts, who reported that it was efficiently and economically managed in all its departments. It seems that the local business of the office has vastly increased, until about one-third of all first-class and circular mail is city matter; and it is estimated that the revenue from this source alone exceeds in amount the cost of the entire postal service of the city, including the free-delivery system.

THE AMERICAN EXHIBITION, LONDON, 1886.—All arrangements having been satisfactorily concluded and an excellent location secured, the announcement is now officially made that the Exhibition will be opened May 1st, 1886, and remain open six months. It will be exclusively confined to exhibits from the United States of America. Forms of application for space and all particulars, may be had on application to the Secretary: C. B. Norton, 7 Poultry, E. C., London, Eng.

SIX-IN-HAND DRIVING.—Prof. Gribbon tells us that the driving he saw during his recent excursion through the Adirondacks, surpassed all his previous experience in respect to daring and skill. The trip from Ausable Forks to Lake Regis, about forty miles, was made with a six-in-hand team in less than six hours, including stops, over an exceptionally steep road. In one case, the team was turned around in a village street so narrow that the Concord coach had to be backed up against a fence, and the horses massed to the utmost extent.

EX-PRESIDENT BRITTON ON THE LABOR QUESTION.—THE first edition of *The Hub's* pamphlet reprint of Ex-President Britton's testimony before the Senate Committee, on "The Condition of American Carriage Workmen," was disposed of within a fortnight; but during the past six weeks many further orders have been received, and this has led us to prepare a second edition, now ready for distribution. Price, 10 cents each, or three for 25 cents (postage-stamps received for cash). This important testimony teems with useful suggestions gathered from Mr. Britton's long and varied experience; and we are glad to be thus able to afford the carriage-builders and their foremen and mechanics another opportunity to secure a copy for study at their leisure.

A PENNY A POINT.—During these piping times of peace in the trade, various expedients are resorted to by which time is killed. There is one house in New-York City, quite well-known and popular, whose quarters are very commodious. Great stress is laid on the commodiousness of the quarters, as otherwise the representative of *The Hub* would have had scruples about playing at shuffle-board on a sample-table at a penny a point, against the junior partner and chief outside representative, while the head of the house was indulging in an æsthetic reverie on the floor below, embroidering his thoughts, presumably, with yearnings after the unattainable, in the shape of present trade. *The Hub* mantook the peach, and kept tally, while the wily representative slowly but surely made inroads into the private fortune of the junior partner,—at a penny a point.

OBITUARY.—Wm. F. Ottman, carriage body-maker, recently employed by J. B. Brewster & Co., of 25th-st., in this city, died suddenly of heart disease on Sept. 26th, at his old home in the city of Lauban, Province of Silesia, Germany, where he had gone to seek rest and restore his failing health. Mr. Ottman was born on Oct. 14, 1825, in Lauban, and served a regular apprenticeship in body-making with his father, who was a carriage-builder. He emigrated to this country in 1851, and first worked in Newark, N. J., and afterwards, at intervals, in Bridgeport, Cincinnati, New-Haven, Philadelphia and New-York, including four years with the old firm of Adams & Co., of 125th-st. and 3d-ave., and about twenty years with J. B. Brewster & Co. He ranked among the best body-makers of this city, and was highly esteemed by his employers and shopmates. He leaves a wife and a grown son.

"WHEN WILL THIS PARALYSIS END?"—"One consideration on which future prosperity may be predicted, sooner or later, is the demand which our increasing population must make on existing instrumentalities of production and distribution. Agriculture is now prosperous. The railway system is in process of adjustment to new and sounder conditions. Of manufactured goods there seems to be a moderate excess, but it is generally believed that if this stock were distributed in the usual way on the shelves of the dealers, and had not been permitted or forced to accumulate on the hands of the producers, it would bear no appearance of excess. It is the waiting for events, the question, 'What next?' that has for a little time checked the customary circulation of goods, and has caused what was named, when it was predicted a year and a half since, a temporary 'commercial paralysis.' This paralysis has been finally caused by what a president of one of the soundest banks in New-York has well named 'a moral panic,' to distinguish it from an ordinary commercial or financial panic. When will this paralysis end? No one can tell, but we may measure the demand which our present increase of population at the rate of nearly or quite 2,000,000 persons a year must make upon the existing instrumentalities of production and distribution, and perhaps we may then at least venture to guess when the whole procession of the trades will move on."—*Edward Atkinson*.

"LETTERS FROM AMERICAN CONSULS to the Carriage-Builders' National Association" is the title of a 40-page pamphlet which the Association has just printed for the benefit of its members, and which ought to prove extremely valuable to all who are seeking foreign trade in American carriages or carriage goods. The letters it contains were recently received by the Association in response to an official inquiry prepared at the last convention of the Association, and addressed by the secretary, with government sanction, to all consuls representing the United States in foreign countries where an export trade ought to be expected. The published replies, 37 in number, contain full particulars in regard to the character and quality of carriages, harness, and carriage materials demanded in the various sections referred to, ruling prices, whether of home manufacture or imported, charges for customs duties, etc., etc. The collection includes reports from Matamoros, Tampico, Guaymas and Chihuahua, Mexico; Ruatan and Truxillo, Central America; Rio de Janeiro, Para and Pernambuco, Brazil; Guayaquil, Ecuador; St. Juan, Porto Rico; Puerto Plata, San Domingo; Antigua, W. I.; Fayal, Azores; Nassau, N. P.; Sydney, N. S. W.; Melbourne, Victoria; Manila, P. I.; Canton and Ningpo, China; Bangkok, Siam; Kanagawa, Yokohama, Japan; Bombay, Bengal, India; Muskat, Arabia; Teheran, Persia; Cairo, Egypt; Constantinople and Smyrna, Turkey; Athens, Greece; Demerara, British Guinea; Cape Town, South Africa; Monrovia, Liberia; Copenhagen, Denmark; Lisbon, Portugal; St. Petersburg and Warsaw, Russia; Charlottetown, Prince Edward's Island; and Halifax, N. S. The secretary of the Association merits special thanks for his earnest prosecution of the task confided to him, and the consuls for their prompt and detailed responses; while the carriage and accessory trades of this and other countries are to be congratulated upon thus having placed in their hands the fullest possible particulars regarding a subject of great commercial importance.

TRADE EMBARRASSMENTS.—*Bradstreet's*, during the past thirty days, has reported the following business embarrassments on the part of carriage-makers and others: D. C. McAllister, commission buggies, etc., Gainesville, Ga., attached by Cincinnati creditors. F. S. Nelson & Co., carriages and sleighs, Boston, Mass., suspended on account of partnership difficulties, and attached. George A. Whiting claims he loaned the firm \$7,000, while the firm claim he contributed it as capital and was a partner. Flanders & Houston, carriage-makers, Concord, N. H., reported assigned.

Hotchkin & Wilder, manufacturers of wagons and sleighs, Syracuse, N. Y., assigned to W. B. Clark. The secured creditors are W. B. Clark, \$33,521; S. A. Woods Co., \$1,052; P. W. Forbes, \$2,400; Merchants' National Bank, \$1,185. The unsecured liabilities are \$40,000; nominal assets, \$60,000, which would probably not realize 50 per cent. in liquidation. F. Dietrich & Co., carriage manufacturers, Cincinnati, O., gave chattel mortgages for \$1,500 and assigned to Edward Ritchie. Morse & Bennecke, carriage manufacturers, Altoona, Pa., closed by sheriff. K. A. Hughson, carriage manufacturer, Rochester, N. Y., assigned to H. B. Hathaway, giving a number of preferences. Gottlieb Kroll, carriage-maker, Philadelphia, Pa., sheriff's sale advertised. William Rounds, wagon-maker, Townville, Pa., assigned. It is thought he can pay in full. William A. Wheaton, carriage-maker, Salisbury, New-Brunswick, assigned to G. A. Steeves. A. T. Finney, carriage-maker, Atlanta, Ga., reported left town. William G. Moore, spoke manufacturer, Lambertville, N. J., assigned to Gresham Lambert. Liabilities, \$15,892; nominal assets, \$9,195; actual assets about \$4,500; preferences, \$3,200. Edgar H. Nixon, carriage materials, New-York city, assigned October 9th to George Von Skal; preference, \$2,080. He succeeded Allen & Nixon May 15th, and then asked an extension, the liabilities being about \$20,000. E. Hayes, carriage-maker, Columbus, O., assigned to M. A. Sharp.

NEW-YORK STATE.

PATENT DECISION.—Crandal, Stone & Co., Binghamton, N. Y., notify the trade that the U. S. Court has rendered a decision favorable to them in their suit against Kemper Bros.

77 OUT OF 78.—At the Onondaga County Fair, held at Syracuse, N. Y., Sept. 15th to 19th, there were exhibited by the prominent carriage-makers of Syracuse and Onondaga County, seventy-eight carriages, buggies and sleighs, seventy-seven of which were finished with Valentine's Varnishes.

FOR THE SIXTH TIME.—Bradley's Cushioned Hammer, made by Bradley & Company, of Syracuse, N. Y., has for the sixth time taken the highest award, the grand silver medal, at the Cincinnati Exposition. These hammers seem always, when exhibited, to scoop the highest awards.

A DOUBLE TEAM.—Mr. D. W. Shuler, of Amsterdam, N. Y., who lives in a place where Springs are perpetual, has taken his son, Mr. Will. Shuler into the firm, and the checks will hereafter be signed D. W. Shuler & Son. Mr. Geo. Montgomery retains his position as the efficient general agent.

NEW-ENGLAND.

CLARKSON'S TWO-WHEELERS are still leading the market in Amesbury, Mass.

DAVID TRUE, of Salisbury, Mass., has invented and patented an improved carriage wrench.

JOHN H. CLARK & Co. is the firm name of a new carriage company in Amesbury, Mass. They are young men of energy, and possess the requisite courage to succeed.

PLEASURE DRIVING IN AMESBURY, MASS.—A larger number of pleasure carriages have passed over the Salisbury beach plank-road this year than last. Up to Sept. 19th, the number was 5,313.

S. R. BAILEY, of Amesbury, Mass., is getting out several elegant designs of sleighs, for which he is receiving large orders. A specimen is on exhibition in one of the fairs in Boston, and attracts marked attention.

NEW PRICE-LIST.—The Hartford Spring and Axle Co., which, by the way, is not located at Hartford, but at Norfolk, Ct., and which, furthermore, does not make springs at all—has just issued a new catalogue that is both handsome and filled with useful information on the subject of axles. Send for one!

THE FOLLOWING COMPLIMENT from the so-called "Hub of the Universe"—Boston, Mass.,—has given us special pleasure. Mr. Wm. B. Howland, Treasurer of the Wheelman Co., in that city, writes: "Permit me to say that I find *The Hub* one of the most attractive and substantial trade journals of the country. It evidently is meeting with strong favor among the people, and it certainly deserves all it receives."

A FIRE AT NEWPORT, R. I., on Sept. 26th, cleared the way for several more new cabs. The Newport Omnibus Company lost six horses, five open omnibuses, one Gurney, two Victorias, three Herdies, one buggy, one landau, and one phaeton. On the Omnibus Company's property there was insurance to the amount of \$2,750. Where is the lucky cab-builder who is to secure this cash?

OUR PORTRAIT OF EDWIN CLAPP.—[See title-page of this number.] In a letter from Mr. Lyman C. Learned, of Pittsfield, Mass., dated Oct. 7th, in which he acknowledges receipt of proof impression of our portrait of his distinguished predecessor in the business, he says: "Thanks for return of the photograph of Mr. Clapp, and print from your engraving of the same, which I think is wonderfully good. I shall take great pleasure in forwarding it to Mrs. Clapp."

COGGINS' TOPS.—In response to the inquiry by Messrs. R. W. Forbes & Son, of New-York City, published in our October issue, page 485, we have received the following response from the Metal Stamping Co., of this city. They say: "O. B. North & Co., of New-Haven, Conn., are making 'Coggins' Patent Adjustable Buggy Tops.'" We beg to suggest that an advertisement of the Coggins Top in our periodical would evidently not come amiss.

PARKER, OF THE PARKER HOUSE, Boston, Mass., who died on May 31st, was in early life employed as coachman by a family living in the suburbs of Boston. Several times each week he was accustomed to drive into the city with the lady and other members of her family, and on such occasions always took dinner at a restaurant. Thus he acquired a liking for hotel life, and to this circumstance his subsequent career was due. A few years later, for \$400, he became proprietor of the little restaurant at which he had so often dined.

EXPLANATORY.—Our Amesbury correspondent writes: "An article appeared in a recent number of *The Hub* concerning a competitive test of two-wheelers at Hampton Beach, on the occasion of the dog-day party, which has apparently done an injustice to the Clarkson spring, as your correspondent has since been informed that that spring did not enter as a competitor, and consequently the trial was of little account. If, by the courtesy of some one of the two-wheeler manufacturers, your correspondent had been invited to hitch up and accompany the party, he might have written more correctly. As it was, it appears that the statement made to him was incorrect."

TRADE REPORT FROM AMESBURY, MASS.—Our special reporter in Amesbury, Mass., writes as follows: "A quiet trade has been the feature of the carriage market at this productive point for three months past. Occasional orders have been received, and as many, perhaps, as the general state of trade would warrant. From the fact that several of our manufacturers are making extensive alterations and additions to their already large factories, one is led to believe that there is still a sanguine feeling all around the wheel. There is but little change to note in prices. That our builders have some cause for expecting

a fair, if not prosperous season, none who have closely watched the reports of the crops can reasonably doubt. In regard to freight tariffs, however, there is but little change, and cannot be until a new outlet to distributing points is obtained. This is a matter that should be agitated until it assumes definite shape, as it handicaps our builders in their competition with other producing centers; and the sooner they combine with adhesiveness, the sooner will the tax be removed."

OBITUARY.—Died, on Sept. 22d, at his home in Worcester, Mass., Alexander K. Richmond, of the firm of E. A. Richmond & Co., carriage and sleigh-builders. The cause of Mr. Richmond's sudden death was a carriage accident, which is thus described by his surviving partner, who says: "On the morning of Sept. 20th, Mr. Richmond was driving on what is called the Bloomingdale Road, and, in attempting to turn out for several teams, his carriage struck a telegraph post which was planted just on the edge of the road. He had a spirited horse, which, as soon as the carriage struck, sprang forward, pulling the whiffletree from the cross-bar. He always drove with a tight rein, and he was immediately pulled from the carriage and thrown with great violence against the post. Help was promptly summoned, and he was taken to his home. His injuries were a broken collar bone and several ribs, besides being very badly bruised, and, as we now think, being injured internally. He died on the morning of the 22d. His age was 62 years. He came to Worcester in 1845, and commenced the carriage business in 1849." Mr. Richmond was formerly a carriage painter, and afterward began building and selling carriages. He was a quiet and retiring business man, and respected by all who had dealings with him.

MIDDLE STATES.

CARRIAGE OIL CARPETS.—Edward S. Worrell, of Chester, Pa., manufacturer of carriage oil carpets, reports a boom in his specialties.

UGHT TO GET HIS MAIL PROMPTLY.—The post-office of New-Durham, N. J., is located in the only carriage-shop of the town, namely: that of Mr. Thos. D. Eckersen, who went into business in 1840 at South Bergen, N. J., and has been in New-Durham since 1843.

RETIREMENT OF AN OLD CARRIAGE FIRM.—Leverich & Enders, carriage-builders, of Newark, N. J., have disposed of their stock, and will retire from business, owing to the continued ill-health of Mr. Leverich. The firm have been in business nearly a quarter of a century, and have earned an enviable reputation for building superior carriages.

A PRESIDENTIAL RELIC.—While visiting the carriage works of D. A. Altick & Sons, at Lancaster, Pa., recently, we saw in their repository a six-passenger Rockaway which was built for President Buchanan by Geo. W. Watson, of Philadelphia, twenty-eight years ago, and used by him while at the head of our Government. Messrs. Altick repainted it lately, and put on new curtains. It is in excellent order, and a very comfortable carriage, and runs on the same wheels, axles and springs as on the day it was first used. How many carriage-makers of to-day can expect similar testimonials to their work in the year 1912, A. D.

WESTERN STATES.

FIRE.—The shops of the Bellefontaine Carriage Co., Bellefontaine, O., were totally destroyed by fire on the night of Sept. 19th, with their entire contents.

THE MILLER CARRIAGE CO., of Bellefontaine, O., write as follows: "Business was dull during September, as is usual in that month; but we have hopes of a revival in trade soon."

LARGE CAB CONTRACT.—It is reported that Forder & Co., of London, Eng., have contracted to furnish a large number of Hansoms to a Chicago cab company, of which W. J. Turney is President and George Pullman a director. Fifty have already been delivered.

THE DAILY WAGES OF PAINTERS in sixteen Western cities, are reported in the September number of *The Painter* as follows: Chicago, Ill., \$2.50 to \$3; Cincinnati, O., \$2.75; Kansas City, Mo., \$2.50; Minneapolis, Minn., \$2.50; St. Louis, Mo., \$2.50; Toledo, O., \$3; Omaha, Neb., \$2.50; Akron, O., \$2 to \$2.25; Dubuque, Iowa, \$2.50; Des Moines, Iowa, \$2.25; Detroit, Mich., \$3; Evansville, Ind., \$2.50; Fargo, D. T., \$2.50; Hastings, Neb., \$2; Joliet, Ill., \$2.50; Sioux City, Iowa, \$2.50.

CARTER'S CART.—Mr. G. W. Carter, of Hudson, Mich., has kindly sent us a drawing of his latest Surrey Cart, provided with a canopy top. The suspension of this cart makes the body entirely free from the shafts, as it rests on two short springs secured to a platform. The claim of abolishing horse motion by this arrangement seems to be well founded, and numerous testimonials give strength to the claim. The cart presents a stylish appearance, and the body especially is graceful and well-proportioned. The arrangement for attaching the body to the running-gear is patented by Mr. Carter.

SOUTHERN STATES.

A CHANGE.—On Sept. 30th, the firm of Fred. N. Thayer & Co., carriage dealers, New-Orleans, La., was dissolved by limitation. It is succeeded by R. P. Randall, who has purchased the business.

QUALIFIED GOODNESS.—Messrs. Williams & Martin, carriage-builders, of Columbus, Ga., make the following trade report: "Business is good, with the exception of money, which it is impossible to get."

WE STAND CORRECTED.—The following editorial note appears in the October number of our new exchange, the *Southern Coach Maker*: "We touch our hat to *The Hub* for its notice of us in its September issue [page 420]. But will our valued cotemporary allow us to make a correction? The Nashville Carriage and Buggy Co. are good friends of ours, but they have no financial or business connection as a firm or individually with the Southern Coach Maker Co., that being a concern strictly composed of us, and having no connection with anybody else, male or female."

FOREIGN.

THE BUSINESS SITUATION IN FRANCE.—*Les Annales Francaises*, Paris, France, under date of Sept. 1st, says: "Business continues depressed, and the year 1884 may be counted as the worst for our special industry since 1870, and we cannot hope to see a change for the better before the end of the year. Before an improvement comes we must take our part in the financial liquidation now going on. The first factors of the present condition are the epidemic, war, and a similar financial condition abroad, the end of which cannot now be foreseen. Without these two scourges, war and the cholera, we could assuredly have counted on greater trade activity in the month of September, because the crops have been very favorable. We have visited several Departments, and have everywhere seen good crops, which have been garnered under generally satisfactory conditions. This is of prime importance to our readers, because the replenishment of the purse of the agriculturist means that they will spend more."

NOTES FROM OVER THE SEA.—One of *The Hub's* friends, who has recently returned from a European trip, writes as follows: "I had a very pleasant trip across the water, and gathered a good stock of pleasant memories. I am indebted to your brother in Paris for his kindly attentions, and his offer

of further good offices if I should again call upon him. I saw a good deal of Mr. Lawson Valentine in Paris, and enjoyed his company very much. Mr. Chas. E. Morrill, of Chicago, with his wife and daughter, were also at the same hotel with me in Paris. Thus, you see, I had good company and an agreeable sojourn. I visited the principal coach-builders in Paris and London, and was well received by all of them. Of course I used my eyes as much as possible, and took notes particularly of what I saw in the parks and on the fashionable drives. I think I gathered some useful ideas, but I saw no radical changes, old forms being adhered to very closely. The bateau or canoe-shaped *Laudau* is very much in favor both in London and Paris, but curved lines in Broughams make little headway; and, when used, they remind one of the styles of 20 years ago. Some of the finest and showiest carriages are gotten up for *demi monde*; so I was told by Mr. B., who showed me some elegant jobs ready for delivery. In America we are not so highly civilized, as yet, as to give us that extra market for unlimited display of fine work, though we may come to it in good time; but the French are a peculiar people and very fond of their pleasures, especially those pleasures where pretty women assist. One novelty I saw in Paris was a Club Brougham only wide enough for one person, whereby the owner is enabled to sever himself from his friends. You see they are more highly civilized than we are; but this, to my mind, is rather uncivil civilization. I had a very good passage out and back, got well rested, and had a good time generally. I did not try to go everywhere, but took the events of the trip easily and not hurriedly."

TRADE REPORT FROM SOUTH AFRICA.—Mr. W. Goodwin, coach-builder, of Market-square, Pietermaritzburg, Natal, South Africa (a valued subscriber and friend of *The Hub*), writes as follows under date of July 22d: "Dear *Hub*: In reply to your question as to business, the best answer would be that there is none,—at any rate, as regards making new carriages. There are still a few American buggies sold here, but at a very low price. The repairs necessary to the number of buggies in the country keep me going, but with only half the number of men employed that I used to have. My principal trade in new carriages used to be with the Transvaal Boers, but that seems to have fallen through altogether, and, for some time past, I have had no orders at all. We all hope that the gold fields will make a change, and I believe we will turn up trumps some time soon, but as yet no good is perceptible. The Lisbon-Berlyn Gold Mining Company appear to be going in big, and so much so that it will likely take all the earnings for some time to come to pay expenses. Of our local company, Moodie's, we hear little or nothing, except of quarrels with the diggers in possession, but there is no doubt the reef is very rich. The chief matter of interest just now is the Boers in Zululand and their doings. I do not know what the end will be, but have no doubt the Zulus will come to grief at last, and the more quickly on account of the so-called British protection, which, so far, has been more fatal to the natives of South Africa than if they had been left unprotected. I notice in *The Hub* that your trade suffers from over-production. It has always been a wonder to me what became of all the buggies, etc., made in the States. One thing is, they do not live long, and buyers soon want new ones. Well, I suppose trade will revive again, both with you and with us. We need it badly. Please accept my best wishes for the continued prosperity of *The Hub*. I am pleased to see how it has improved since your great loss by fire. I send you a couple of local newspapers which may interest you."

TRADE REPORTS FROM SPECIAL CORRESPONDENTS.

TRADE REPORT FROM WILMINGTON AND PHILADELPHIA.

WILMINGTON, DEL.

During a recent visit to Wilmington, Del., well-known among the craft for its numerous factories devoted to carriages and accessories, we visited the carriage factory of Messrs. McLearn & Kendall, corner of 9th and Church-streets, where we were courteously received by Mr. McLearn, and also had the pleasure of making the acquaintance of Mr. S. W. Kilvington, superintendent and draftsman, who accompanied us through the whole establishment, starting with the repository and finishing with the smith-shop. The shops are well regulated, and have plenty of light. The number of fires at present is 15, and 125 hands are employed, but in busy seasons the number of hands is increased to 175.

We next visited Mr. F. T. Clymer's carriage-body factory, corner of Third and Orange-streets. Mr. Clymer builds bodies for the trade, and is kept busy even during the present dull times. A full complement of hands is employed, working full time. We saw some fine styles of carriage and hearse bodies. A blacksmith shop is connected with the establishment, and 2 fires are running at present, ironing light work and hearses, and 40 hands are employed.

The works of the A. E. Smith & Warner Axle Co. are located near by Mr. Clymer's, and Mr. Warner kindly afforded us an opportunity for inspection. Several new and improved machines have recently been introduced, and it is not surprising that, with such facilities at their command, they are able to produce axles of unexcelled quality.

Messrs. Cooling Bros. build light work principally. The vehicles exhibited in their repository were tasteful in finish, and showed superior workmanship throughout. The four-passenger curtain Rockaways with low doors and Extension-top Phaetons were especially attractive. This firm employ about 40 hands, and have 6 fires in operation.

The Gregg & Bowe Carriage Co. build principally heavy work, of superior workmanship and finish. Among the novelties shown us was an old-time chaise, 108 years old, and built in England. The wheels had about three-inch dish in front of the front spoke.

PHILADELPHIA.

On our homeward trip Philadelphia was our next stopping place, where we first visited our friend Mr. R. H. Lee, foreman in Mr. W. D. Gardner's smith-shop at No. 214 S. Fifth-street. Here there is always something new to be seen in the iron-work of running-gears, and we believe that, at the time of our call, there were not two gears in the place which were ironed alike. Business has been very good with Mr. Gardner.

It is always a special pleasure to visit Messrs. Wm. D. Rogers, Son & Co.'s factory, the style and finish of whose carriages are of the best. Business was reported "good during July, but quiet at present."

Messrs. D. M. Lane's Sons have done a fair business up to this date. In their repository, No. 1,221 Chestnut-street, we saw the mail-coach of which a drawing appeared in our August number, finished and ready for delivery. This coach is a splendid piece of work, and it will no doubt add greatly to the already high reputation of the firm.

Messrs. Chas. S. Caffrey & Co. have a fine repository at No. 1,522 Chestnut-street, the majority of the vehicles exhibited being light work. This firm has an enviable reputation. They report business "fair."

Messrs. Geissel & Bayha formed an agreeable exception to the majority of the firms we visited, their report being briefly: "We are as busy as we can be." They always had their share of patronage, but we were informed that it has increased very considerably since the firm of E. Fitzgerald & Co., of No. 1,204 Frankford-street, went out of business.

Messrs. J. J. Sowney & Bro., of No. 749 S. Fourth-street, make a specialty of heavy work, mainly for livery use. A useful contrivance noticed here deserves mention: The bottom bar for all drop-lights is lined with tin on the top-face, and the edges of the tin bent up, forming a box; while a hole is bored through to the bottom of the body, and a piece of gas-pipe inserted, reaching to the bottom of the body. The claim is that, by this method, the water can recede freely, and the inside be kept quite dry,—an essential point, especially at the doors.

Messrs. Sowney & Bro. report their business "fair." They have 2 fires, and a force of 24 hands. Among the body-makers in this shop we were pleased to find our old friend Mr. Graf, formerly foreman with Gottlieb Wentzler, on Broad-street.

Messrs. Walker & Co. are the leaders among the wagon-makers of Philadelphia. Their factory is at the corner of N. 20th and Filbert-streets. We were indebted to Mr. Geo. Y. Shoemaker, a member of the firm, for many courtesies. The factory is conveniently arranged, and work can be turned out rapidly. A large stock of seasoned timber is kept always on hand. A force of 150 hands is employed. This firm also have a repair shop at Callowhill and Broad-street, and a building, 52 x 163 ft., at No. 21 Washington-avenue, for storing lumber. Business was reported "very good," and a part of the hands were working over-time.

ALBERT KEHRL.

FLY-LEAVES FROM A TRAVELERS' NOTE-BOOK.

IX. LOCALITY: NEW-YORK STATE.

EDITOR OF THE HUB.—DEAR SIR: I herewith conclude my series of Fly-leaves from New-York State.

ROME.—Going back now to the Central Road again I come to Rome, which is an enterprising city, doing a good trade in general merchandise, but not much engaged in carriage making. The leading shop is that of Mr. D. D. Williams, who is making fine light work and has a good trade in general jobbing. Mr. Williams is doing well, keeps his business snug, and is one of the most reliable men in the trade.

The Rome Spring Wagon Co. are also, I am told, doing a fair business in wagons alone.

WHITESTOWN.—Working eastward, we find at Whitestown, near Utica, Mr. Mr. A. Luman, who has a good roomy shop. He has been located here a long time, and has always made the best of work. He is doing well, and has a fine sleigh trade in addition to his carriage business.

UTICA.—Here we find Mr. Fred Bates, the successor to his father, who died about two years ago. John Bates was one of the oldest and best carriage-makers in the State, and had a first-class trade in A No. 1 work. The son not only inherits the goodwill of the concern, but the ability and pleasant manners of his father, and he no doubt will keep up the reputation of the shop and do well.

Isaac Roberts is doing a large repair business and also makes some fine new work, mostly to order. He is assisted by his two sons, who are good mechanics, and the concern is doing well.

ILION.—F. Coleman & Co. are doing a good business in fine light and heavy work, and they also make one of the best and most popular road-carts in the market. Mr. Coleman is a skillful mechanic, and the firm is doing a good business.

LITTLE FALLS contains one large shop, that of Mr. Chas. Benedict, an old and well-established carriage-builder, who formerly had a large Western trade and still holds some of it, but the West has of late years become largely self-supporting, especially in wagons and carriages, which has to a great extent changed the current of trade. Mr. Benedict is well-to-do, and in his old age can afford to take the world easy, which he is doing.

COHOES.—We find here one good shop, doing quite a business in general jobbing and now getting into heavy work, such as delivery wagons, coal-carts, etc. This is run by H. G. Steenburgh, who is an honest man, giving close attention to his business and no doubt doing well.

SARATOGA.—There is but one firm here making new work, namely, Jas. Demaine & Son, who are doing fairly well; but Saratoga seems to be a poor place for carriage making, as no one has thus far succeeded in building up a large business there.

GLENS FALLS is a fine city and has several good shops doing a fair trade in carriages. Joubert & White are the largest, and are the patentees of the celebrated Buckboard Wagon which they make a specialty of. They are doing as good work as can be done, and get good prices.

Nelson Lasalle has a good jobbing business, and builds some good new work. He has been there several years, and has succeeded well.

George Ferris is an old carriage-maker who was in business at Glens Falls some fifteen years ago, and was successful. He afterwards went to Saratoga, but, after a few years absence, he has returned here and resumed his old business. He is doing good work, and is fairly prosperous.

One of the most promising young firms in this part of the State is Cashion Brothers, who have recently built a large shop and make wagons and carriages. There are five of them in the firm, all mechanics and hard workers. If they pull well together, they can't but succeed, and I wish them all the prosperity their energy and industry entitle them to.

CHESTERTOWN, thirty miles north of Glens Falls, is the home of Remington & Bowyer, who are doing a general jobbing business and building some good new work. They are first-class mechanics, and find their trade increasing as their work gets out and stands the tests. They are putting up some of the Joubert & White Buckboards, which are quite popular with the class of visitors from New-York and the other cities who spend the summer in this delightful section of country. I wish them continued success.

TROY.—Here we find, in the old Chamberlin shops, Messrs. W. F. Bidwell & Co., who are doing a good business and making a wagon of the Bidwell patent. They have as superintendent, Mr. John Wilber, who was formerly in the carriage business at Sandy Hill, N. Y., and who is a fine mechanic and no doubt doing them good service. There are several other shops in Troy doing jobbing and heavy work, but it is not what can be called a "carriage-making city."

ALBANY.—Here we find one of the best carriage firms in the country, equal to the best and inferior to none: I refer to Messrs. Long & Silsby, who have been in the business many years, had large experience, and always made work as good as could be made, regardless of what it cost. The result is that a Long & Silsby wagon stands A No. 1 in the market. While the seniors are still giving attention to the business, Mr. Silsby has a son who acts as office man, and Mr. Long has two sons who are employed in the works and are skilled mechanics, so that when the elders retire, the old firm, with the young heads, will still keep on the same as before.

Shaw & Barnett are interested in fine heavy work, such as fire apparatus, etc., as well as fine light carriages, and they turn out excellent work, and are doing a large and increasing business.

The old firm of Jas. Goold & Co. is still doing a fine business. The elder Mr. Goold, who lived to be about ninety years old, was, as you know, a grand old man, and did great honor to the carriage trade. His grandson and others of the firm now continue the business, and with satisfactory results.

Before concluding my report of New-York State, I should mention that the Mulholland Spring Co., at Dunkirk, are rapidly growing in favor with the trade, as their increased orders from the East and West abundantly prove; and they are gradually increasing their facilities for manufacturing their springs and gears.

Yours truly,

E. D. MOORE,
Of the Royer Wheel Co.

The Story of the Convention.

St. Louis, Mo., October 15 and 16, 1884.

Being a Detailed Report of the Twelfth Annual Convention of the Carriage Builders' National Association.



OWN to a recent period, the municipal constellation of the United States was represented as a Wheelbarrow, with Boston as "the hub," New-York and Philadelphia the two front pillars, Chicago and Cincinnati the legs, and St. Louis and New-Orleans the handles. But times have changed. Fashions have

developed and improved. The day of the Wheelbarrow has gone by, and the Cart has taken its place, with one hub in Bos-

ton and a second hub in St. Louis, with New-Orleans and Savannah its two rear pillars, New-York and Cincinnati the ends of its seat-board, and Chicago and Buffalo its shaft-tips. Here's health to that second "Hub of the Universe," St. Louis, where the members of the Carriage Builders' National Association were so lavishly entertained last month,

on the occasion of its Twelfth Annual Convention, from which we have recently returned, and which we propose now, for the benefit of all our readers who were not present, to describe with such detail as small type and fifteen large pages will allow.

CHAPTER I.

Condensed Diary of Convention Week.

IF any one thinks he can obtain anything like an adequate idea of what "Convention Week" really means, by reading a written account of it, he is much mistaken; but we will endeavor to make our report as suggestive as we can; and, for the benefit of those who cannot make time to read it through, we present below a condensed diary of the week's doings, followed, in Chapter II, by an abstract of the principal proceedings.

* * *

MONDAY, OCTOBER 13, 1884.—The Southern Hotel begins to be crowded with delegates. No committee room having been retained, *The Hub's* private parlor is made the official headquarters. The delegates begin to visit Mercantile Library Hall, the place of meeting and exhibition. Exhibitors busy with preparation. In the evening, meetings of the Technical School Committee and Executive Committee.

TUESDAY, OCTOBER 14.—Annual Exhibition opened to the public. Visits to local carriage-factories, the Exposition Building, Washington University, Museum of Art, Manual Training School, and other points of interest. In the evening, further meetings of the Executive and School Committees.

WEDNESDAY, OCTOBER 15, A. M.—First session of the convention, lasting from 10.30 A. M. to 1.15 P. M. About 275 delegates present. Regular order of business followed, including address of welcome by President McLear, report of the Secretary and Treasurer, report of the Executive Committee, report of the Technical School Committee, \$1,000

offer by Mr. Lawson Valentine, report of the Treasurer of the Technical School Fund, report of the Committee on Apprenticeship, adoption of an official indenture for carriage apprentices, report on the proposed Mutual Benefit Alliance, etc., etc. Membership increased to 700.

WEDNESDAY, OCTOBER 15, P. M.—Second session of the convention, lasting from 3.15 to 5 o'clock, P. M. Regular order of business continued, including election of officers (President McLear being unanimously re-elected), consideration of the subject of offering prizes for drawings, consideration of the subject of holding a grand national exhibition of carriages and parts thereof, passage of resolutions in memory of deceased members, inauguration of a plan for gathering trade statistics, contribution of \$50 by Mr. D. W. Haydock toward the Technical School Fund, etc., etc.

THURSDAY, OCTOBER 16, A. M.—Third business session, lasting from 10.30 A. M. to 2 P. M. General Business. Plan of the proposed Mutual Benefit Alliance debated and then laid on the table. The Technical School Fund increased by \$700. Debate on the propriety of coöperation in regulating production of carriages, and committee appointed to investigate and report upon the subject. Boston unanimously chosen as the place for the next Annual Convention, and recommendation that the period be extended from two to three days. Miscellaneous addresses followed, and at 2 P. M. the convention was declared adjourned.

THURSDAY, OCTOBER 16, EVENING.—Grand annual banquet of the Association, at the Southern Hotel, with 275 members and guests present. Eight regular toasts responded to by celebrated speakers, including Hon. Geo. W. Parker, Ex-Governor E. O. Stanard, Gen. W. T. Sherman, and others.

FRIDAY, OCTOBER 17.—Complimentary drive tendered to delegates and their friends by Mr. Henry Timken, of St. Louis. A four-in-hand coach, occupied by a band of music, and followed by 64 open carriages, makes the tour of the city and its environs, including Shaw's Garden, Forest Hill Park, the Fair Grounds, etc. At the Fair Grounds a lunch partaken of, followed by numerous speeches.

SATURDAY, OCTOBER 18.—Close of the Annual Trade Exhibition, and departure of the delegates for their homes. Ho! for Boston, in October, 1885!

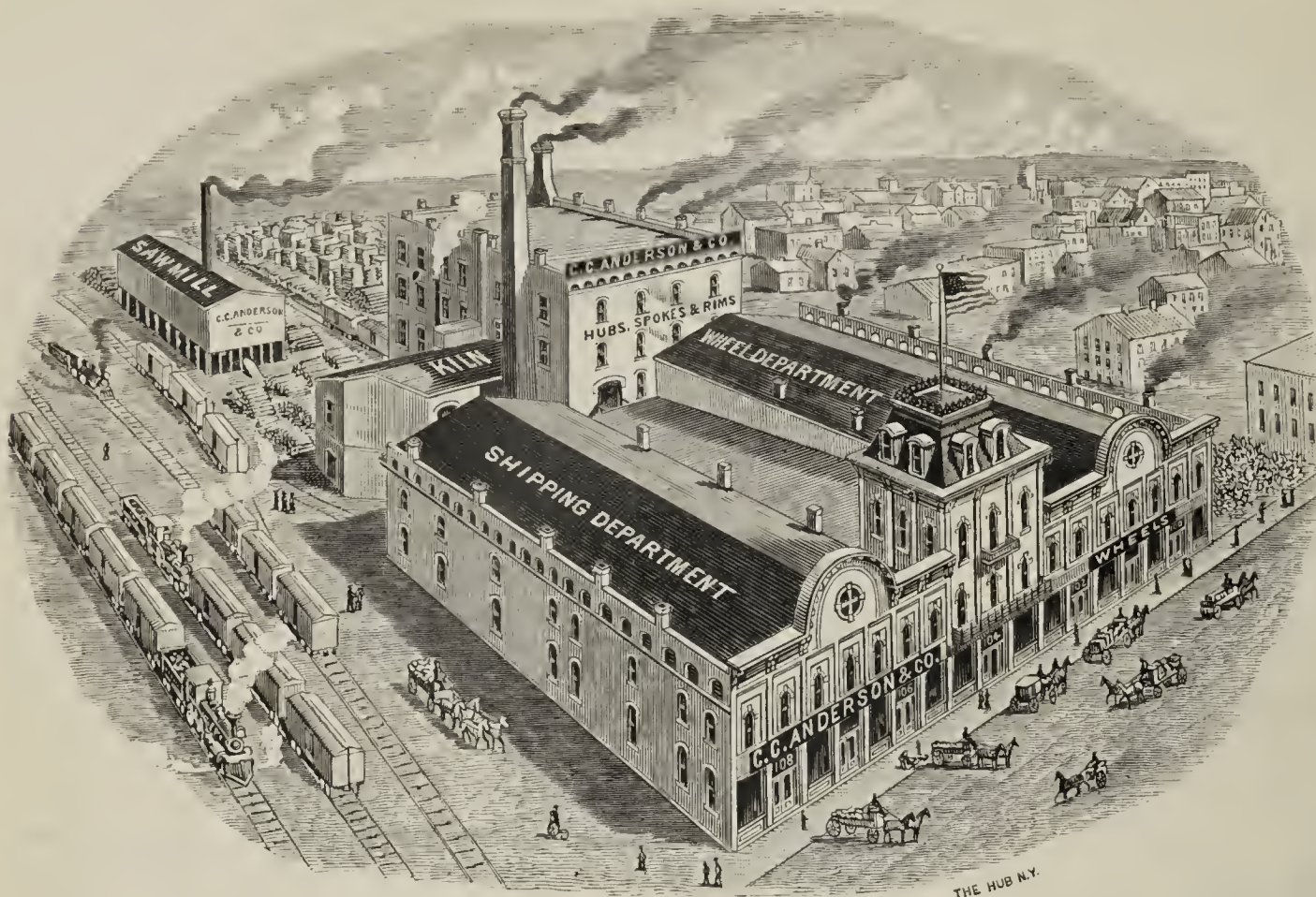
CHAPTER II.

Abstract of Proceedings.

THIS was the third convention of the Association held in the West, and memorable as the first occasion that it has crossed the Mississippi River.

In the number of delegates which it called together, there was a falling off as compared with the record of last year in New-Haven, when 422 members were present; but the exact number gathered in St. Louis is unknown, for the reason that the roll-call was dispensed with. Judging, however, from the dinner-tickets called for at the banquet, the number was probably about 275, including an unusual proportion of Western members, but comparatively few from the East, many of the latter being deterred by the long distance, some by illness, and others, no doubt, by the depression in trade, which, as experience amply teaches, demands greater rather than less attention to the routine cares of business. Among the absent ones who were most missed were Messrs. Britton, Rogers, Stivers, Thomas, Kimball and Studebaker, all of whom hold positions on the official staff, and all of whom, with one exception, were unfortunately on the sick list.

Among the best known and most active of those present were Mr. Henry C. McLear, of Wilmington, Del., President of the Association;



FINE
SARVEN
PATENT

Band Hub and Plain

WHEELS,

Manufactured from Choice

Second-Growth Timber,

BY

C. C. Anderson & Co.,

GALION, OHIO.

Send for Price-list.

Highest Award for Fine Wheels at Cincinnati Exposition, 1884 (Silver Medal).

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MANUFACTURERS OF

CARRIAGE BODIES

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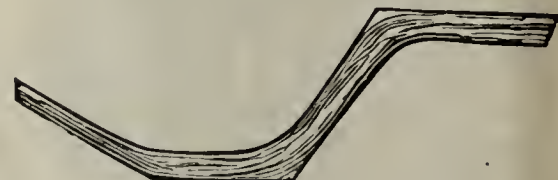
Titus's Pat. Bent Sill Phaeton Body.

Acknowledged to be the best Phaeton Body ever put on the market.

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No. 1.



SILL.

F. B. STOCKBRIDGE, President.

G. E. STOCKBRIDGE, Vice-President and Treasurer.

S. S. McCAMLY, Secretary.

ESTABLISHED 1870.

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Mr. Lowe Emerson, of Cincinnati, Vice-President; Mr. Wm. P. Sargent, of Boston, Vice-President; Mr. W. T. Haydock, of St. Louis, Vice-President; Mr. Frank H. Hooker, of New-Haven, Secretary and Treasurer; Mr. Wilder H. Pray, of New-York, ex-Secretary and Treasurer; Mr. C. D. Firestone, of Columbus, O., member of the Executive Committee; Prof. John D. Gribbon, instructor-in-chief of the Technical School; and Messrs. Timken, Wright, Burrows, Peters, Lechler, Halsey, Suydam, Shepard, Mulholland, Smith, Studebaker, Connolly, Morrill, Saladee, Haydock, Fisher, Ives, Johns, Montgomery, Parker, Walker, Clark, Parsons, Harris, Harrall, Strieby, Wooster, Loudren, Clarke, Booth, Grier, Maitland, Elmendorf, Stewart, Quacknabush, Jones, Gay, Short, Thompson, Soule, Behlen, Mack, Dann, Monteith, Davis, Taft, Wachler, Decker, Hughes, Hess, Chamberlin, Morse, Sheldon, Arthur, Scott, Plumsted, Meeker, Wright, Gray, Villets, Pennoyer, Bridges, Seabrook, Howard, etc., etc., etc., besides full representation of the various manufacturers of carriage specialties, and the full editorial and traveling forces of the carriage trade journals.

The two distinguishing features of the St. Louis convention may be set down as these: first, the unusual number of Western members which it called together; and second, the harmony and good feeling which existed throughout the week, without a shadow of any kind to mar the movement of either business or entertainment. It was thought by some that the election of officers might lead to unpleasant debate; but, as a matter of fact, there was no debate whatever, and, with a unanimous vote and the best of feeling, substantially the old ticket was re-elected amid prolonged applause. As toast-master at the banquet, President McLearn performed that delicate and difficult task to the entire satisfaction of everybody. It was feared that the Technical School would suffer when the Committee came to make their appeal so far from home; but it was evidently understood by those present that the school, with its Chautauqua appendage, now has its home in every city and town in the United States—in St. Louis just as much as in New-York; and the subscriptions of \$700, together with those which still remain due from the New-Haven subscription list, will cover all necessary demands upon the school treasury for a year to come.

An unusual amount of good solid work, of lasting value to the trade, was either accomplished or undertaken at this convention.

The vexed apprenticeship question was settled for the present, by the adoption of an official form of indenture, adequate from a legal point of view, so simple and broad that none can fail to understand its bearings, and carefully adjusted to answer the requirements of the present generation. It now rests with members of the trade, individually, to adopt this form of indenture, and put it into immediate practice.

The past, present and future of the Trade School and the Corresponding Classes connected therewith were fully explained and discussed; and a sufficient sum was added to the School Fund to guarantee the successful continuance of the work for a year to come.

An interesting debate concerning the propriety of coöperation in regulating, to some extent, the production of carriages, led to the appointment of two committees, whose reports of statistics, promised for the next convention, will be awaited with much interest. It is unquestionably true that it would prove advantageous to the trade generally if certain manufacturers who now annually produce, say, 5,000 vehicles, at a net profit of \$2.00 each, should curtail their annual product to half that number, at the same time realizing double that average profit; and the producers themselves would also be benefitted by such a course. Of course, the Association has no power whatsoever to influence the action of individual members, excepting by the education of public sentiment; but the annual presentation of full and official data regarding the total production of the trade, its distribution, and the changing relations of supply and demand, could not fail to prove highly advantageous, both to the trade generally and to every individual member thereof.

The proposed Mutual Benefit Alliance did not, we are sorry to say, meet with the approval which was expected, and the question was laid upon the table. If, however, the idea possesses the merits which we attribute to it, it is pretty certain to be found still alive at the next convention; and it is perhaps better that it should be allowed another year in which to ripen.

The Trade Exhibition was unusually large and interesting, comprising nearly seventy exhibits, and it attracted much attention. Some complaints were made regarding insufficient space, and it was considered a hardship that exhibitors should be compelled to cover their goods during the holding of the business sessions. This, however, seemed necessary to those in charge, owing to the fact that the exhibition and the business meetings were held in the same room,—a condition that will no doubt be avoided at future conventions. We were happy to learn that several exhibitors made satisfactory sales during convention week, and that they were so encouraged by the result as to desire increased space next time.

The publishers of the *Carriage Monthly*, of Philadelphia, won well-earned laurels for their enterprise in supplying, each morning, a printed transcript of the stenographer's notes of the previous day's proceedings,

which naturally proved very helpful to the members in following the course of events, and to the editors of the other trade journals in perfecting their reports. *The Hub* takes pleasure in acknowledging its own indebtedness in this respect.

CHAPTER III.

First Business Session.

MERCANTILE LIBRARY HALL, ST. LOUIS, MO., Oct. 15, 1884.

THE Twelfth Annual Convention of the Carriage Builders' National Association was called to order in this place at 10.30 A. M., President Henry C. McLearn, of Wilmington, Del., in the chair, who opened the meeting with the following address of welcome:

OPENING ADDRESS BY PRESIDENT MCLEAR.

GENTLEMEN OF THE CARRIAGE BUILDERS' NATIONAL ASSOCIATION: It is my pleasant duty to welcome you to this, the twelfth annual meeting of our Association. I congratulate you that, in spite of the business depression now general throughout the country, in which our trade is one of the chief sufferers, we have been able to gather so large a representation from the leading centers of our trade in the East, West and South.

This, as you know, is the third time we have met in a western city, including Chicago in 1880, and Cincinnati in 1881, though now, for the first time, we meet west of the Mississippi River. At each of these western meetings we have received new inspiration, which has aided in enlarging the field of our labors. At Chicago, we inaugurated our Trade School for the instruction of carriage draftsmen, which has been in successful operation ever since. At that convention, also, the idea of holding an inventors' exhibition of models and parts of carriages was first suggested, which has since grown into one of the most interesting and instructive features of our annual meetings. At Cincinnati the new idea of the exhibition in connection with our convention was shaped and developed into the form in which you find it to-day, and further advancement was made in perfecting and strengthening the school under your charge.

What will be the chief events of the meeting we are now opening is yet to be recorded; but I feel confident, judging by the character of the men here gathered, that it cannot but prove instructive and profitable in many ways.

I congratulate you on the large attendance, and now declare the convention open for business. [Applause.]

The regular order of business was then taken up, and the calling of the roll ordered; but, on motion of Mr. R. Mulholland, this formality was dispensed with.

* * *

The following report of the Treasurer of the Association was read by Mr. Frank H. Hooker:

REPORT OF TREASURER OF THE ASSOCIATION.

Cash on hand, Oct. 2, 1883.....	\$1,082.84
Received Initiation Fees, Honorary Members.....	360.00
“ “ “ Active “	135.00
“ Yearly Dues.....	2,095.00
“ Dinner Tickets and Sundries.....	183.65
“ Space at St. Louis Exhibition.....	175.00—\$4,031.49
Cash paid out, as per itemized statement to Executive Committee.....	\$3,286.94
Cash on hand, October 1, 1884.....	744.55—\$4,031.49

Respectfully submitted,

Audited by
R. M. STIVERS, *Chairman*.
WILDER H. PRAY.

NEW-HAVEN, CONN., Oct. 2, 1884.

FRANK H. HOOKER, *Treasurer*.

On motion of Mr. Mulholland, the above report of the Treasurer was approved, and ordered to be placed on file.

* * *

The following report of the Executive Committee was read by Mr. Wilder H. Pray:

REPORT OF THE EXECUTIVE COMMITTEE.

Mr. President and Members of the Carriage Builders' National Association:

GENTLEMEN: Time, in its rapid flight, has once more brought about the period of our annual gathering, when we may extend to each other friendly congratulations, review the past, and plan for the future. Our meeting, in many respects, is held under less favorable auspices than for several years past. Yet, while business prospects tend to depress us, we can but feel that the cordial greetings and renewed and extended acquaintance formed, an interchange of views on the situation, together with the pleasure of a visit to one of the greatest of our inland cities, will revive the drooping courage of the timid and stimulate the brave to renewed efforts.

Your Committee, while unable to congratulate you on the prosperity of the carriage trade, feel that they can truthfully say that in no other manufacturing industry of like importance has there been evidenced the presence of those strong business qualities that carry manufacturers safely through financial storms. Failures have occurred, but the percentage in numbers has been less than with most other manufacturers, while the losses have not been of a serious nature. A conservative policy has very generally prevailed. Those who have expanded their production are the few, while the many have reduced their output; and though it may not have an encouraging effect to state that the production has been decreased, yet it speaks well for the prudence and good judgment of our manufacturers, and attests the security of the foundation of the carriage industry in this country.

Members of the carriage trade share, to a great extent, the enthusiasm and activity that is so marked a feature of our national character. They are not content to accept that which comes to them; on the contrary, from the man who constructs a few carriages in the little village shop, to the manufacturer who produces vehicles by the thousands, all seek for “new worlds to conquer.” Their judgment, however, has controlled their zeal, and less capital has been put into extensions than formerly. Their motto seems to have been: “Run a waiting race” and be ready for renewed efforts when the business prospects brighten, a result which your Committee believe to be in the near future.

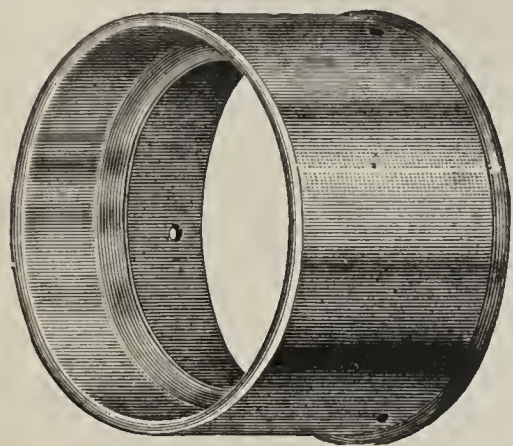
SECRETARY'S REPORT.

The Secretary and Treasurer's report, which will be read to you, shows an increase of membership, 36 honorary and 28 active members having been enrolled since the last report, increasing the total membership to about 700. Our Association is free from debt. We have only a small balance in the treasury, owing to the failure of members to pay their dues promptly. The eleventh

The Parker Carriage Goods Co.

A. S. PARKER, Pres; for six years Gen'l Agent CRANDAL, STONE & Co.
P. R. MITCHELL, Vice-President.
The Parker Hub Band. L. M. RINGWALT, Secretary and Treas.
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Buttons, Tufting.
Curtain Lights.
Concealed Joints.
Drive Knobs.
Riveting Knobs.
Barbed Knobs.
Staple Knobs.
Screw Knobs.

Knob Patches and Fasteners.
Name Plates.
Prop Block (Rubber).
Prop Block Washers.
Prop Washers.
Shaft Rubbers.
Top Props, Parker's (no screws).
Top Prop Nuts.
Whip Sockets, etc., etc.



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WE HAVE NO BRANCH HOUSE IN CINCINNATI.

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riding Spring made.

The OLIN Spring.

Patented August 30, 1881.
Reissued Aug. 21, 1883.

EVERY person, without exception, who has used these springs, pronounces them *head and shoulders* above all others now known to the carriage trade.

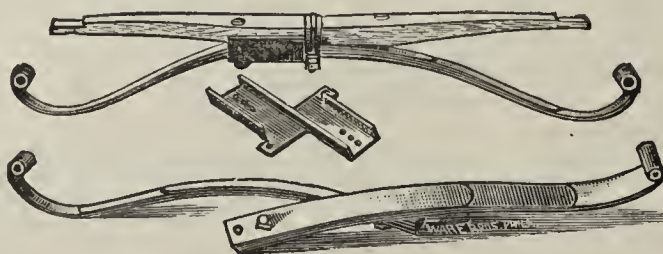
Here are a few points of advantage we claim:

First: They are adjustable, and can be fitted to all sizes of gearing or body, having a variation of four (4) inches (two inches increase or reduction in length from standard size, at which they are coupled at the factory).

Second: They carry the body in a better position, when unevenly loaded, than any flexible spring now before the public.

Third: Their simplicity of application enables any one, even

FOR SIDE-BAR VEHICLES.



an unskilled mechanic, to adjust them by simply changing the bolts in the crabs.

Fourth: By the manner of attaching the crabs in the center, we avoid all forward motion of the body upon striking obstructions, which with other Side-bar Spring sometimes causes a breakage of spring bar.

It would seem impossible to combine in any style of springs, greater strength, neatness, durability, ease of motion and application than we claim is to be found in ours, and we feel confident that it will be to your advantage to order a sample set, knowing full well that other orders will follow after a trial.

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Silvered, Japanned and Colored Lining and Saddle Nails.
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Tufting Buttons, with every eye soldered to its back, which makes the strongest button in the market. (Patented June 28th, 1881.)
AMERICAN TACK CO.,
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BUTTONS

annual report was published and mailed to each member, and constitutes a valuable part of the history of this Association.

TECHNICAL SCHOOL REPORT.

The report of the Committee on Technical Education, which will be read to you, shows gratifying progress in the endeavors to educate our young men, and the efforts bid fair to yield satisfactory results. The class at our school showed commendable progress last season, and starts with good prospects this. The success of the corresponding class, which was inaugurated last year, was all that could be expected, and there is every reason to believe that, when its true aim is understood, it will increase in popularity; and your Committee would urge it upon the members of this Association to encourage their workmen, especially the younger members, to join this class, and take the full course of lessons. And your Committee urge all who have not contributed toward the school fund to do so at once, in order that the school, which is now so prosperous, may not be crippled for the necessary means to conduct it.

PRIZE DRAWINGS.

Your Committee felt that the little interest manifested by those connected with the trade, did not warrant the offering of awards for prize drawings for the past year; but they believe that, as the benefits arising from the teachings in the technical school became more diffused, there will be a renewed interest, and the offers of prizes will be heartily welcomed by our aspiring draftsmen.

APPRENTICESHIP.

In compliance with instructions given the Committee on Apprenticeship, blank forms of indentures have been agreed upon, and a specimen blank forwarded to each member of the Association, which we hope will meet with your approval. Your Committee desire to call special attention to the foot-note on that form, which reads as follows:

"By a vote of the Association, members in our trade agree not to hire an apprentice who may have been serving in another shop, under the form of indenture recognized by the Association, unless he has a written discharge, with the reasons for such discharge, duly signed by his employer."

All can understand that unless manufacturers recognize the importance of sustaining one another, by refusing to employ an apprentice who has not served his time faithfully with his original employer, or can carry with him sufficient proofs of his willingness to have done so, this plan of indenturing will prove a failure, as have all others.

LETTERS FROM AMERICAN CONSULS.

At the convention held in New-Haven last year a resolution was adopted instructing the Secretary to prepare a circular letter and send copies to American Consuls throughout the world. This letter was prepared and forwarded as directed, and a large number of answers received, which were printed in pamphlet form, and a copy mailed to each member of the Association. These replies, your Committee feel, are valuable, giving, as they do, information that was difficult to obtain, and which must prove useful to all seeking foreign markets. It is to be regretted that more of our Consuls did not give this matter their attention, but we feel that the thanks of the Association are due to those who complied with the requests made in the circular.

EXHIBITION OF MODELS.

The interest exhibited by inventors and manufacturers of carriage materials in the success of our annual gatherings has shown itself by the large display of models, etc., which makes an exhibition well worthy a visit by carriage manufacturers. These exhibits have increased in such numbers that it has been found difficult to provide sufficient accommodation for their proper display. That these exhibits are of great value none can doubt; and your Committee would suggest that a grand exhibition of carriages, parts thereof and carriage goods, under the auspices of the Carriage Builders' National Association, be held at such time and place as may be decided upon by this Association. An exhibition of this kind could not fail to attract the attention of the carriage trade throughout the country, and, if held in a large city, would net a handsome surplus for the benefit of the Carriage Builders' Technical School, an institution that is destined to make a lasting impress upon our trade.

RECOMMENDATIONS.

This Association having grown until it now includes among its active members manufacturers from every part of the country, your Committee feel that the number of the Executive Committee should therefore be increased to not less than nine members, with the President and Secretary as *ex-officio* members as heretofore, five of whom should constitute a quorum.

The subject of establishing a Mutual Benefit Alliance in connection with the Association has attracted much attention, and at a previous convention a committee was appointed to prepare a plan. It is to be hoped that, before the adjournment of the convention this year, an organization will be perfected. Institutions of this character are being formed by many of our mercantile and commercial bodies, such as stock and grain exchanges, banks, etc. Their object is to provide a fund that will serve to furnish immediate aid to the families of deceased members. The families of men who leave behind them wealth may not need such assistance, but it must be remembered that a much greater number die poor than rich, and common humanity and the warmer ties of fraternal friendship demand that we care for those who aided and encouraged us while living, by providing for those who were dependent upon them for support.

A general knowledge of the trade is desirable, and, while the census statistics furnish data, they are not always reliable, owing to the ignorance of those who compiled them concerning the technics of the trade, and your Committee would suggest that some action be taken toward taking a census of the trade at an early day.

The carriage industries are exceptionally fortunate in having journals devoted to their interests, and your Committee would urge upon the members of the trade the duty of encouraging these journals in every way possible, believing that the more the trade read upon subjects pertaining to their interest, the greater will be their progress and the more prosperous will they become.

CONCLUSION.

In concluding, your Committee cannot refrain from calling attention to the benefits derived from our organization. It has led to the establishing of a fraternity that makes members feel at home wherever they visit; it has organized and maintained one of the most successful technical schools in the country; it has presented its members with valuable information regarding every department of their trade, and it now stands as a powerful, organized body of manufacturers, ready and able to demand of legislative bodies recognition in the framing of laws affecting individual and collective interests. With a membership now well nigh seven hundred, and the prospect of a steady growth for years to come, our Association must continue as a powerful element for good to the trade it represents, and to the communities with which it is associated.

MORTUARY.

Death has visited us, and three of our members have gone to their rest: B. Manville, Phineas Jones and James Hall, two of whom were active and one an

honorary member. Honored while living, their memories will be cherished by those who survive; and, as the roll of our deceased members increases, we can but look upon the dead as absent friends, whose mission is ended, but whose works live after them.

R. M. STIVERS, <i>Chairman.</i>	} <i>Executive Committee.</i>
WM. D. ROGERS.	
WILDER H. PRAY.	
JNO. W. BRITTON.	
C. D. FIRESTONE.	} <i>Ex-Officio.</i>
H. C. MCLEAR,	
FRANK H. HOOKER.	

The foregoing report of the Executive Committee was accepted, and laid on the table for further action.

* * *

The report of the Committee on Technical Education, was read by the Secretary of that committee, Mr. Geo. W. W. Houghton, who prefaced it with the following remarks:

REMARKS BY MR. GEO. W. W. HOUGHTON.

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION: I have here a long story to read to you, but it represents a year of hard work on the part of the committee of four, representing this Association, who have superintended the work of technical education in the school founded by you in Chicago in 1880.

I want to recall to your minds, before reading the report, what the situation in this country was, previous to that time, as regards the instruction of carriage mechanics. According to the published reports, there were, in 1880, about 15,000 carriage, wagon and sleigh manufacturers in this country. There was no apprenticeship system, and there were no schools of any kind especially devoted to the instruction of pupils in the branches that would be useful to the carriage mechanic. There were no private instructors who made a specialty of that branch. The young men of this country who wished to learn carriage-building had to depend on some good-natured body-maker or foreman, to give them such points as he could in a more or less incidental manner; and in all America there was no place to which such young men could go and receive regular and systematic instruction. In Europe it was quite different. In all the old countries of Europe they had the apprenticeship system still in force. A part of that apprenticeship system consisted in the instruction of the apprentices. It was laid down in the indentures, as a part of the bargain on the part of the boss who took the young man, that while that young man was with him, he should, to the best of his ability, give him such instruction as he could. In addition to the apprenticeship system abroad, there were also schools where a specialty was made of carriage mechanics and carriage drafting. Paris had two such schools. One of them had been running for many years, and was thoroughly organized, and had trained teachers; and there the young mechanic or carriage-builder could go and get the best instruction that was possible. In England there was at least one such school, and among the larger manufacturers special teachers were often employed. But in America there was nothing of the sort. At Chicago the idea was brought up that a trade school should be founded under the supervision of this Association, and supported by it. The sum of about six thousand dollars was raised. Within two weeks afterward, the school was started, and it has been running ever since that time.

My report, as I will now read it, will show you what has been done during the past year, and will indicate what we want to do during the coming year.

* * *

Mr. Houghton then read the following report, occasionally pausing to explain more in detail the facts presented, and to point out the drawings referred to:

REPORT OF COMMITTEE ON TECHNICAL EDUCATION.

To the Members of the Carriage Builders' National Association:

GENTLEMEN: Your Committee entrusted with the duty of supervising the work of technical instruction inaugurated by you at the Convention held in Chicago in 1880, beg to present the following detailed report in regard to the results of their efforts during the fourth season of the regular Evening Classes, and the first and experimental season of the Chautauqua or Corresponding Classes, both of which closed on April 30th, of this year. Following this, we also append a brief report regarding the reopening of the same classes, on the 1st of the present month; and an outline of our plans regarding the means to be employed during this, the fifth year of our official connection with the work, in order to secure a larger number of scholars, and render more effective and practical the methods of instruction, that we may thereby realize, to the utmost possible extent, the hopes which you have entertained in founding and maintaining a trade school for the education of the rising generation of carriage draftsmen and mechanics.

REGULAR EVENING CLASSES.

As previously, your school was carried on last season in connection with the Technical School of the Metropolitan Museum of Art, in New-York City, constituting a distinct department of that school, and subdivided into several different classes.

Three teachers were employed, namely: Mr. John D. Gribbon, instructor-in-chief; Mr. John C. Konrad, instructor of the primary class, with special reference to free-hand drawing; and Mr. Julius Polya, instructor of the advanced class, with special reference to geometry and its application to the requirements of the carriage body-maker.

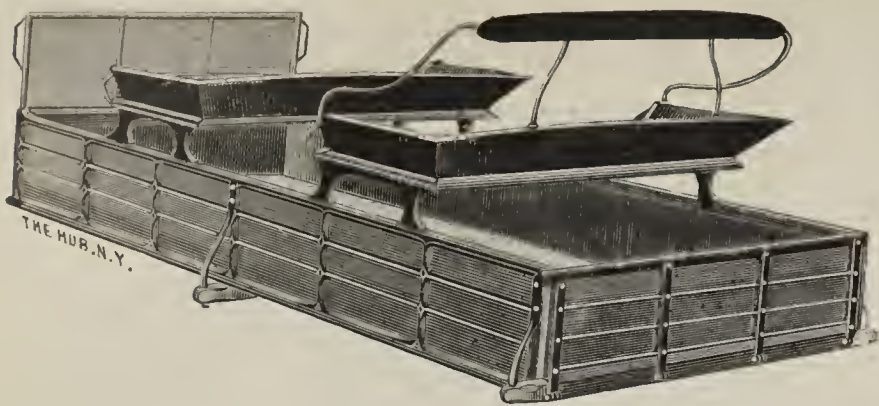
The term opened on Monday, Oct. 8th, 1883, and closed on Wednesday, April 30th, 1884.

At the beginning of the season there were 33 pupils on the roll, as compared with 28 at the opening of the next preceding season, which number was increased to 39 in January, 1884.

The pupils were divided among the different mechanical departments as follows: 27 wood-workers, 9 blacksmiths, 2 painters, and 1 office man; and, as to locality, their residences were distributed as follows: New-York City, 25; Brooklyn, N. Y., 2; Long Island City, N. Y., 3; Westchester, N. Y., 1; Jersey City Heights, N. J., 1; Rahway, N. J., 1; Paterson, N. J., 1; Salt Lake City, Neb., 1; Boston, Mass., 1; Newark, N. J., 1; New-Haven, Conn., 1; and Portland, Me., 1.

Three sessions were held each week, during the period above named, on Monday, Wednesday and Friday evenings, from 7.30 till 10 o'clock. The total number of sessions was 81, and the attendance averaged as follows: for October, 28; November, 29; December, 31; January, 25; February, 23; March, 19; and April, 20. In view of the unusually stormy winter and the long distances which most of the pupils had to travel to reach the school, together with the fact that business was dull, and several pupils were obliged to leave the city in search of employment, we consider this average of attendance fair.

The studies pursued included free-hand drawing, on both paper and blackboard; introductory lessons in plain and solid geometry; the application of the rules of geometry to the construction of carriage bodies and gearings; the making of scale drawings of carriages, wagons and sleighs on paper; the making of working drawings in full size, both on the blackboard and roll-paper; and the study of numerous mechanical problems connected with carriage construction. Specimens of the work executed by the pupils in these different branches are on exhibition at this convention, many of which are the work of youths who had received no instruction in drawing before joining your school; and we feel that we could offer you no better evidence than these, of the practical character



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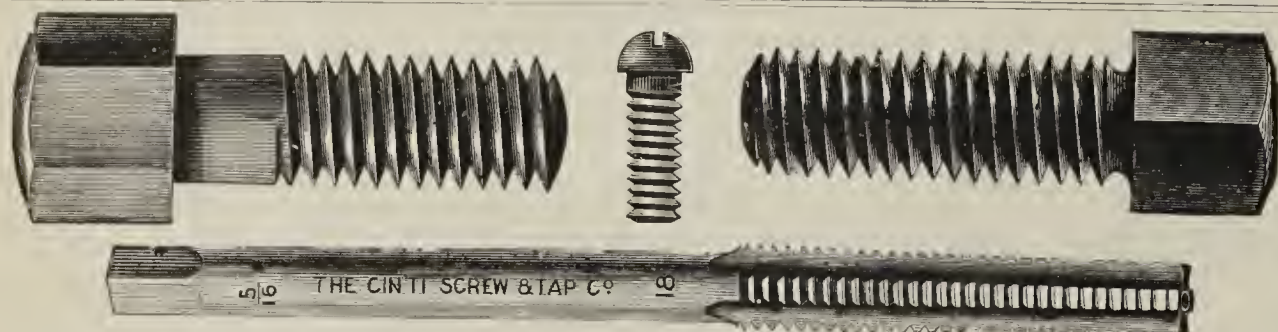
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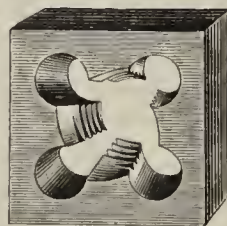


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Aug. 1, 1884.

323 Pearl-st., New-York.

and efficiency of the instruction afforded, or of the enthusiasm and ability of the young men who are utilizing the opportunities you have placed within their reach.

For the convenience of pupils desiring to practice free-hand drawing on the blackboard, and to read the trade journals, the class-room was opened throughout the term at 30 minutes preceding the assembling of the class; and it gives us pleasure to report that this privilege was taken advantage of by many of the pupils. The following trade journals were contributed regularly to the library, for which we beg to thank their respective publishers, namely: *Coach, Harness and Saddlery*; *Carriage Monthly*; *The Hub*; *Coach Painter*; *Western Carriage, Wagon and Harness Journal*; *Blacksmith and Wheelwright*; *Coach Builders', Harness Makers' and Saddlers' Art Journal*, of London; *Saddlers', Harness Makers' and Carriage Builders' Gazette*, of London; *Le Guide du Carrossier* and *Le Peintre en Voitures*, of Paris. Thanks are also due to Hon. S. S. Cox and Hon. Perry Belmont for Reports of the United States Board on tests of iron and steel and other metals, and Reports of the Smithsonian Institute and Department of Agriculture, and to many other friends—notably Messrs. W. G. Shepard & Co., of New-Haven, and Mr. S. R. Bailey, of Amesbury—for contributions toward the School Library and Museum of Models. Further gifts of a similar character are urgently requested; and every contributor may feel assured that such books and models are appreciated and studied.

THE NEW CHAUTAUQUA OR CORRESPONDING CLASS.

It will be remembered that, at your last convention, this committee was ordered to inaugurate a new plan of instruction, known as the "Chautauqua System." This was to consist of a "Corresponding Class," to be carried on in connection with your Trade School, for the purpose of enlarging its field of usefulness and extending the benefits of technical education to all employés of carriage factories, wherever located, who might desire such instruction, but were unable to absent themselves from their homes in order to attend the regular evening classes.

Within a few days subsequent to the convention in New-Haven, which closed on Oct. 18, 1883, your committee held several special meetings for the consideration of this project; and the assistance of the originator of the system, Dr. J. H. Vincent, of New-Haven, Conn., was kindly given us in the task of perfecting arrangements for its successful operation. Mr. John D. Gribbon accepted the position of teacher of the new class; and, under his supervision, an elaborate course of instruction was laid out, and numerous illustrated lesson papers were prepared, indicating the line of study to be pursued, and encouraging the pupils to closely follow the lead of the instructor. The scheme was widely advertised, and proprietors of carriage shops throughout the country were urgently requested to lend their assistance by forming classes of corresponding pupils among their employés.

As soon as all these preliminaries had been satisfactorily arranged, the class was started, and continued without interruption until the close of the school term; and we have now the pleasure of reporting that the results of our efforts in this direction, although of course largely experimental, already sufficiently prove the feasibility of this plan of instruction, and promise future benefits of the utmost importance to the carriage and wagon industry of this country.

The work of the first season, which opened on Dec. 1, 1883, and closed on May 1, 1884, may be briefly epitomized as follows:

The total number of pupils who were members of the Corresponding Class throughout the term, and who satisfactorily responded to the lesson papers and examination papers, was 110.

The lesson papers sent out during the season were devoted to free-hand and mechanical drafting, and were 21 in number, 15 of which called for responses, and there was also one examination paper requiring written replies. Special attention was given to free-hand drawing, which your committee deem of vital importance as a means of training the eye and hand to work together; and remarkable progress was shown by many of the pupils, as will be seen by specimens exhibited here. All responses from pupils were carefully examined, criticised and rated by the instructor, Mr. John D. Gribbon; and, out of a possible total of 160 credits, there were 50 pupils who received between 50 and 100, and 17 who received between 100 and 153. Some idea of the labor involved is suggested by the mention in Mr. Gribbon's report, that, during the term, he received from corresponding pupils a total of 918 regular responses to lesson papers, in addition to 367 miscellaneous letters and postal-cards; and he mailed to such pupils a total of 2,882 lesson papers and 1,039 letters and postal-cards.

LECTURES BEFORE THE SCHOOL.

In view of the exceptional labors and responsibilities devolving upon your committee by reason of the duties above referred to, it was considered advisable to curtail the usual course of practical lectures before the evening school; and only two such were given, namely: February 20th, by Mr. H. G. Shepard, of New-Haven, Conn., on "Carriage-parts, with Special Reference to Platform Work;" and March 12th, by Mr. H. M. DuBois, of Philadelphia, on "Wheel Timber and Technics of Wheel-Making." Both of these lectures were well attended, and proved highly interesting and instructive; and your committee hope, during the present season, to further utilize this means of introducing to the pupils the leading specialists of the trade, who, with the assistance of models and blackboard illustrations, are thus enabled to impart to their hearers facts of the greatest interest and importance, and in a manner particularly calculated to impress the memory.

Such, in brief, is the record of our last year's labors, which will be supplemented by the report of the treasurer of our committee regarding the expenses involved, and by the exhibition in this room of many drawings made by the pupils, to which your thoughtful attention is invited.

OPENING OF THE THIRD SEASON.

We beg now to present an outline of our plans for the current season, just opened, and to ask every member present to kindly consider how he can lend his assistance to realize the plans and hopes therein suggested.

The advisability of ultimately making the Trade School of the Carriage Builders' National Association separate and distinct from any other organization, has more than once been brought to the attention of your committee, and the question has been fully discussed; but we beg to report that we are of the unanimous opinion that it would be wiser, all things considered, and perhaps quite as economical, to continue the work—for the present, at least,—in connection with the Technical School of the Metropolitan Museum of Art, in the form of classes carried on under the auspices of that school, rather than to undertake the added responsibility which would attend a separate organization. We have therefore renewed, for the present season, our arrangement of last year with the Metropolitan Museum committee, which includes the annual payment by us of \$1,200, together with the fees received from all pupils of the Regular Evening Classes, as an equivalent for rent, light, heat, janitor, and the salary of one instructor; while we separately employ and pay two additional instructors and retain the nominal fees received from Corresponding Pupils. We feel confident that this action will meet with the approval of all members of the Association who are acquainted with existing circumstances.

On Wednesday, the first day of the current month, your school was opened for the fifth season of its work, the three instructors of last year being retained, namely: Messrs. Gribbon, Konrad and Polya. The list of pupils already includes 23 evening scholars, and 36 corresponding scholars. The present number of

evening scholars shows a decrease as compared with last year at the same period, but they are of a much higher grade, about one-half of them being scholars of the previous term, and thus prepared to immediately continue their tasks. Two of these began a full-size working drawing of a Ladies' Phaeton on the evening of Friday, October 3d, which was sufficiently advanced on the 11th, after six evenings' work, so that we are enabled to exhibit it here for your inspection. The young men who made this draft, Messrs. Donovan and Schilbach, are respectively 23 and 20 years of age, the former being a journeyman body-maker, and the latter an apprentice.

The membership of this class is divided as follows among the different mechanical departments: 14 woodworkers, 3 blacksmiths, 5 clerks and office-workers, and 1 carriage-builder who is a proprietor; and, in their percentage, they represent seven different nationalities, namely: German, Irish, Hungarian, Scotch, English, Polish and American, with the German element decidedly in the majority, and the American as notably in the minority—a significant fact to which we beg to call your attention.

SUGGESTIONS.

In concluding, the first request we have to make is to urge upon members of the Association the importance of increasing the present membership of the school. With the perfected working organization and experienced teachers now at our service, we can readily care for all pupils who are likely to present themselves, and we earnestly desire to extend the benefits of instruction to the largest possible number of carriage mechanics and apprentices, many of whom—and, very probably, those who most need the help—fail to recognize the importance of this exceptional opportunity for receiving, at merely nominal cost, a technical education which cannot but prove of immediate and lifelong value to them. Please show your interest in the cause, by urging your employés to either join the school or form local corresponding classes. As your representatives, we have provided a practical and thoroughly organized system of instruction, capable of reaching in their homes and benefitting all young men who place themselves under its influence; and we now call upon you to help us make the membership as large as possible. Every carriage factory in the country should now have its Local Corresponding Class; and we beg to suggest that, upon you, as individual proprietors, rests the responsibility of seeing that such classes are promptly formed and brought in communication with the parent school. We submit that this is a duty you owe to the young mechanics in your employ, as well as to yourselves as progressive manufacturers. The nominal fee of \$1.00 a year for each apprentice, or \$2.00 for a journeyman, is intended merely to cover the expense of postage; and a few words from you, explaining the facts of the case and recommending your young men to utilize this inexpensive and attractive means of instruction, will, in most cases, be all that is needed. In the place of last year's 110 corresponding pupils, let us have 1,110 this year. We can, if you will do your part!

We would next call attention to the need still felt by the teachers, of a fuller and more representative collection of text-books, drawings, parts of carriages, and models of all kinds. Please bear in mind that contributions of this character are always welcome.

Third, we invite all members of the Association and their friends who feel willing to address the school on any technical topic regarding the carriage trade with which they are familiar, to address the secretary of our committee, stating subject and the time chosen, in order that our usual lecture course may be continued. These are intended to be informal practical talks rather than lectures, and we feel confident that many members might readily confer lasting benefit to the scholars by this means.

Lastly, we respectfully request that you will replenish the treasury of the school, so that your committee may feel assured as to its continuance, and proceed with greater confidence in planning future work. The custom of making subscriptions payable in three annual instalments has been found to work satisfactorily; and it is hoped that many such subscriptions will be added to the list at this convention. You will notice by the report of our treasurer, that the total expense, last season, of running the entire school was \$3,229.38, divided as follows: for the Regular Evening Classes, \$1,849.54, including salary of one additional teacher (as compared with \$1,675.84 during the preceding season), equivalent to a cost of \$47.50 for each of the 39 pupils then enrolled; and, for the Corresponding Class, a total of \$1,379.84.

The total expenses for this season are expected to be about the same, but we hope materially to reduce the average by dividing it among a larger number of pupils. Please consider whether you are disposed to cover the expense of one or more such scholars; and if you are, please announce your subscriptions now.

Respectfully submitted,

JNO. W. BRITTON, *Chairman*.
WILDER H. PRAY, *Treasurer*.
WM. D. ROGERS.
LOWE EMERSON.
CHAUNCEY THOMAS.
WM. N. FITZ-GERALD.
GEO. W. W. HOUGHTON, *Secretary*.

Signed by the Committee on Technical Education,

On motion, the foregoing report of the Committee on Technical Education was accepted, and referred for further consideration and action.

* * *

The Chair requested Mr. Houghton to read a letter which had been received from Mr. Lawson Valentine, containing a suggestion relative to the Technical School.

In introduction of the letter, Mr. Houghton spoke as follows:

GENTLEMEN: I imagine you have heard about enough from me this morning; but here is something intimately connected with the school work, and I thought possible I might have to make some explanation of its bearing. It is an extract from a letter addressed to one of our committee of four who have charge of your school. It is entirely unofficial. It relates to a suggestion which Mr. Lawson Valentine has made; and, in a manner characteristic of that gentleman, it backs up the suggestion with a proffer. I hope the Association will see some proper mode of accepting it. If so accepted, the duty of planning the manner of expending the money, and of devising a practicable mode of instituting the instruction referred to, will, I suppose, devolve upon the school committee. They have had no time to consult together in regard to it, as the letter arrived just before this convention was about to meet. I trust, therefore, that you will either appoint a committee to take the matter in charge, or refer it to the school committee with power to act.

Mr. Houghton then read the following communication, which was received with applause:

SUGGESTION BY MR. LAWSON VALENTINE.

PARIS, FRANCE, Sept. 9, 1875.

—: I have been thinking that it would be a good plan to extend the field of the Corresponding Class by starting, in connection with it, a Chautauqua Counting-Room or Office Department, to give those who feel the need of better office training, an equal chance with those in the free-hand drawing class.

You see, this might be the means of guiding many young men (if hungry for the instruction) how to qualify themselves to better keep their books and accounts; and it would at least tend to impress upon their minds the importance

MOSES BIGELOW.

JOHN C. KIRTLAND.

ESTABLISHED 1845.

MOSES BIGELOW & CO.,

MANUFACTURERS OF

FINE COACH VARNISHES, NEWARK, NEW-JERSEY.

Excelsior Top Company

MANUFACTURERS OF

Rubber and Leather
Carriage

AND

Extension Tops,
Cushions, Backs, Dashes
and Shifting Rails,

Cortland, N. Y.

We are the largest manufacturers of Carriage Tops in the United States, and are prepared to give the Trade better goods, and at lowest prices, than any other manufacturer. Our goods are sold by all the principal Jobbers in Carriage Goods in the United States and Canada.

Catalogues and Price-list on application.



HOWARD M. DUBOIS,

PROPRIETOR

Union Spoke and Rim Works,
Otter, below Front, Philadelphia, Pa.

Spokes.

Rims,



Wheels,

Hubs.

A long practical experience, a thorough knowledge of stock, careful personal selection of it, the use of improved machinery and methods in its manufacture, and prompt and particular attention to orders, warrants us in soliciting your patronage.

WOOD BENDING FOR CARRIAGE WORK A SPECIALTY.

Prices and information cordially given on application.

Rice's Easy-Riding Carriage Springs

are now absolutely the
most perfect in the
world.

Hundreds of Carriage-
makers write us that all
who use them are de-
lighted with them.

For Sale by all Dealers in
Carriage Goods.

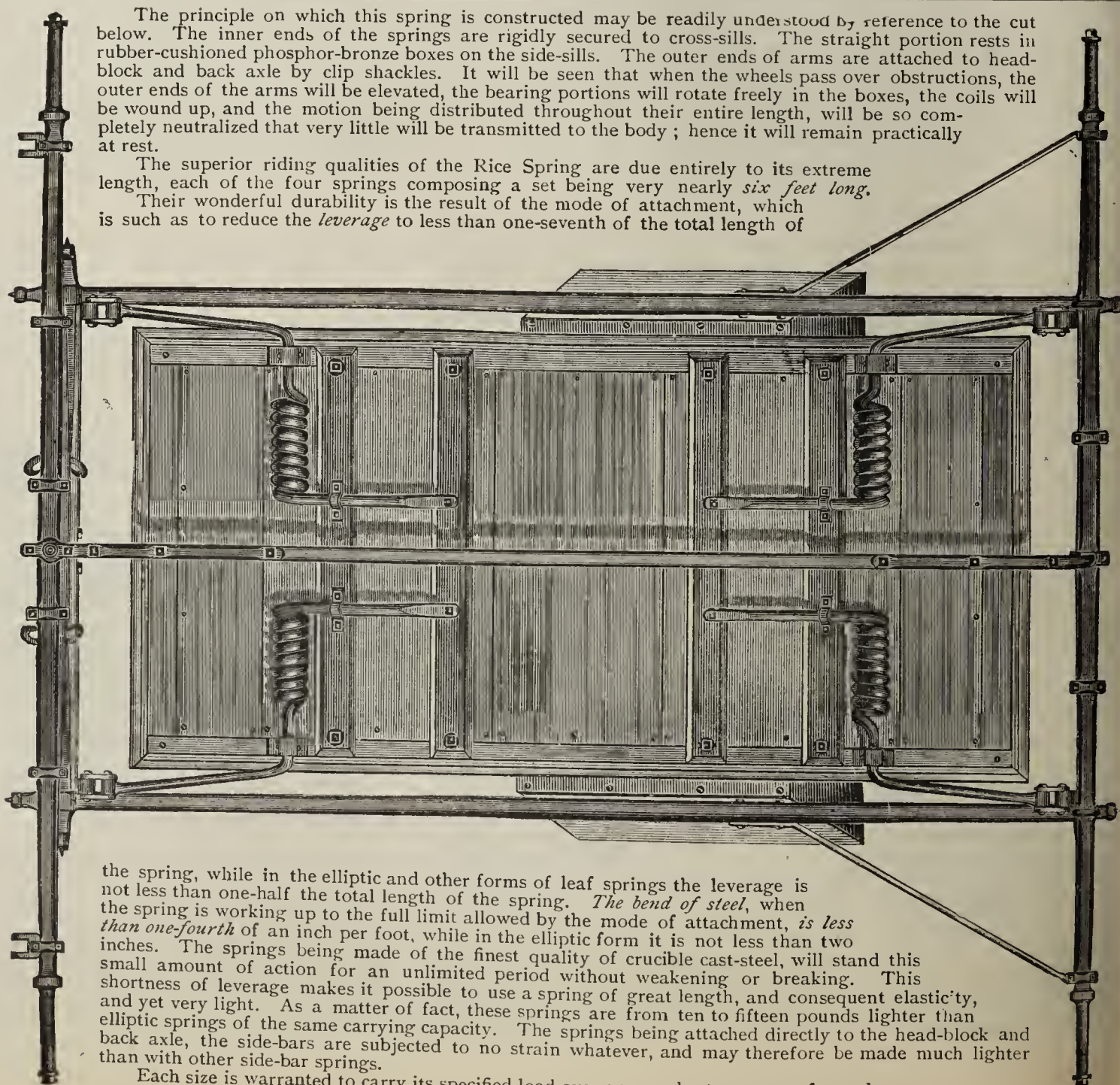
Send for Descriptive
Circulars and Testimoni-
als.

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RICE
Spring and Carriage
COMPANY,
PITTSBURGH, PA.

WM. & HARVEY ROWLAND,
Frankford, Philadelphia.

HENEY & LACROIX,
Montreal, Canada.



The principle on which this spring is constructed may be readily understood by reference to the cut below. The inner ends of the springs are rigidly secured to cross-sills. The straight portion rests in rubber-cushioned phosphor-bronze boxes on the side-sills. The outer ends of arms are attached to head-block and back axle by clip shackles. It will be seen that when the wheels pass over obstructions, the outer ends of the arms will be elevated, the bearing portions will rotate freely in the boxes, the coils will be wound up, and the motion being distributed throughout their entire length, will be so completely neutralized that very little will be transmitted to the body; hence it will remain practically at rest.

The superior riding qualities of the Rice Spring are due entirely to its extreme length, each of the four springs composing a set being very nearly *six feet long*.

Their wonderful durability is the result of the mode of attachment, which is such as to reduce the *leverage* to less than one-seventh of the total length of

the spring, while in the elliptic and other forms of leaf springs the leverage is not less than one-half the total length of the spring. *The bend of steel*, when the spring is working up to the full limit allowed by the mode of attachment, is *less than one-fourth* of an inch per foot, while in the elliptic form it is not less than two inches. The springs being made of the finest quality of crucible cast-steel, will stand this shortness of leverage makes it possible to use a spring of great length, and consequent elasticity, and yet very light. As a matter of fact, these springs are from ten to fifteen pounds lighter than elliptic springs of the same carrying capacity. The springs being attached directly to the head-block and back axle, the side-bars are subjected to no strain whatever, and may therefore be made much lighter than with other side-bar springs.

Each size is warranted to carry its specified load over any road, at any rate of speed.

nd necessity of correct accounts, as a vital factor of success in the management of the smallest as well as the largest shops. Please put yourself mentally in the place of the generation of carriage, wagon and cart-makers now growing up, and decide whether I am not half right in the idea of engrafting such a department on the Corresponding Class of your school.

You could offer prizes for the best forms of general accounts, for the set of books best adapted to the needs of the carriage-maker, for the best specimen of balance, etc., etc.

In the above, I have intended to merely point the idea; and my faith in it is such that, with the approval of all concerned, I am willing to offer \$1,000, as I did last year for another purpose, in order to give it a practical test. If it is thought well of, I feel that I want to do just this much for the Carriage Builders' Association for the current year. This, you see, is sort of an option for you to act on according to your best judgment. I write now, as I don't know but that the convention will be over at St. Louis before I return home and have a chance to talk it over with you.

[Signed] LAWSON VALENTINE.

On motion of Mr. Pray, the above proposition was referred for future consideration and action.

* * *

The financial report of the Committee on Technical Education was next called for, and read by the Treasurer of that committee, Mr. Wilder H. Pray. It was as follows :

REPORT OF TREASURER OF TECHNICAL SCHOOL FUND.	
STATEMENT.	
To cash on hand at last settlement.....	\$3,748.76
To receipts from subscriptions.....	3,355.00
To interest on deposit, Farmers' Loan and Trust Co...	92.90
To Corresponding Class : Fees from pupils.....	175.04—\$7,371.50
CONTRA.	
By disbursements to date :	
Regular Evening Class.....	\$1,849.54
Corresponding Class.....	1,379.84
By cash on hand.....	4,142.12—\$7,371.50

SUMMARY OF SUBSCRIPTIONS.	
Total single subscriptions.....	\$5,195.90
Total yearly subscriptions.....	11,430.00
Paris scholarship, fund and interest.....	520.59—\$17,146.49

[Amounts due and unpaid, \$60.00.]

SUMMARY OF RECEIPTS AND DISBURSEMENTS.	
From single subscriptions.....	\$5,215.90
From yearly subscriptions	6,650.00
Paris scholarship.....	500.00
Interest on deposits.....	328.08
Rebate on school payment.....	11.15
From Corresponding Class.....	175.04—\$12,880.17
CONTRA.	
Total disbursements.....	\$8,238.05
Special deposit of fund for Paris scholarship.....	500.00
Cash on hand.....	4,142.12—\$12,880.17

WILDER H. PRAY,
Treasurer, Committee on Technical Education.

ST. LOUIS, 13th Oct., 1884.

On motion, the above report was accepted, and ordered to be placed on file.

THE APPRENTICESHIP QUESTION.

The report of the Committee on Apprenticeship was next called for; and Mr. Frank H. Hooker, the Secretary of that committee, responded, by giving a verbal report of the work accomplished during the past year, and presenting a printed draft of the form of indenture which had been made up by the Committee, and which they now presented for the approval and adoption of the Association. This draft was as follows :

FORM OF INDENTURE FOR APPRENTICES.

THIS AGREEMENT, made this.....day of.....
A. D. 188.....between.....of the first part, and
.....of the second part, witnesseth :

THAT the said.....hath voluntarily and
of his own free will engaged himself as an apprentice to the said.....
.....to learn the trade or art of.....
and after the manner of an apprentice to serve the said.....
from this date until the.....day of.....A. D. 18.....
at which time he will attain the age of twenty-one years.

AND the said.....promises that during all
the said term of his apprenticeship he will serve his said employer faithfully, will keep his secrets, and obey his lawful demands; that he will do to the property of his said employer, or to the property of others in his charge, no damage, nor see such damage done by others, without giving immediate notice hereof; that he will not waste the goods or property of his said employer, nor, without due authority, lend them or permit others to use them, but that he will in all things behave himself as a faithful apprentice ought to do.

AND the said.....promises that he will make
all reasonable endeavors to teach his said apprentice, or to cause him to be taught, in the aforesaid trade or art, and will pay him for his services, during the said term of his apprenticeship (making deductions for absences from sickness or without leave), as follows :

During the first year \$.....	per week.
“ “ second “ \$.....	“ “
“ “ third “ \$.....	“ “
“ “ fourth “ \$.....	“ “
“ “ fifth “ \$.....	“ “

AND upon the completion of his said apprenticeship, if the said apprentice has faithfully performed the duties thereof, will pay him a further sum equal to five per cent. of all sums previously payable to him under this agreement, and will give him a certificate setting forth the fact that he has served him

as an apprentice, the length of time during which he has so served, and the trade or art to which his labors have been given.

I,.....the.....of the above
named.....hereby consent to and approve the foregoing
agreement of apprenticeship, and bind myself to the said.....
.....in the penal sum of One Hundred Dollars for the
faithful performance of the terms thereof by the said apprentice.

IN WITNESS WHEREOF the said parties hereto, and to another instrument
of like tenor, set their hands on the day and year above mentioned.

WITNESS :[SEAL.]
.....[SEAL.]
.....[SEAL.]

JNO. W. BRITTON, New-York,
WILLIAM D. ROGERS, Philadelphia, } *Committee*
CHAUNCEY THOMAS, Boston. } *on Apprenticeship.*

NOTE.—By a vote of the Association, members in our trade agree not to hire an apprentice who may have been serving in another shop, under the form of indenture recognized by the Association, unless he has a written discharge, with the reasons for such discharge, duly signed by his employer.

On motion, the above report was accepted, and referred for future action.

MUTUAL BENEFIT ALLIANCE.

The reports of special committees being next in order, Mr. Wm. N. Fitz-Gerald, of New-York, presented a printed draft of a set of By-Laws, Rules and Regulations, which the Committee recommended as the basis of the proposed Mutual Benefit Alliance, introducing it as follows. Mr. Fitz-Gerald said :

GENTLEMEN : I would say, in regard to this matter, that some years ago a committee was formed for the purpose of taking into consideration the advisability of forming a Mutual Benefit Alliance in connection with this Association. The committee have had the matter under careful consideration, and, last summer, we examined the By-Laws of numerous similar Associations, with a view to selecting such features as were most available for our purposes. From those the following By-Laws, Rules and Regulations have been formulated, and are now offered for your consideration. If you adopt them, they will be the basis of the organization of such a society. I will add that this document has been examined by competent lawyers, and pronounced entirely correct and legal, and I am satisfied that it will stand the test of the Courts.

We present below the full text of the document which Mr. Fitz-Gerald then proceeded to read :

REGULATIONS OF THE MUTUAL BENEFIT ALLIANCE.

ARTICLE 1.

This Association shall be known as the Mutual Benefit Alliance of the Carriage Builders' National Association.

ARTICLE 2.—Qualifications for Membership.

All members of the Carriage Builders' National Association—active, associate, honorary or life honorary—at the date of the organization of this Alliance, shall be eligible to membership on making application at any time within the period of six months from the date of the adoption of these rules and regulations, and on the payment of \$— as an initiation fee. Persons becoming members of the Carriage Builders' National Association after the adoption of these rules and regulations, must present a certificate from his physician of general good health; also a certificate of membership of the Carriage Builders' National Association, but no medical examination shall be necessary.

ARTICLE 3.—Officers and their Duties.

The officers of this Alliance shall consist of a Board of Trustees—seven in number—who shall annually select from their number one member as President and one member as Secretary and Treasurer.

The President shall preside at all the meetings of the Board, sign all drafts drawn upon the Treasurer, and have a casting vote in case of a tie. In the absence of the President, the Board shall elect one of its members as President pro tem.

A majority vote of the Board present at any meeting shall be sufficient for the transaction of general business, but a two-third vote of the entire Board shall be necessary to appropriate funds of the Alliance.

A majority of the Board shall constitute a quorum for the transaction of general business.

The Secretary and Treasurer shall receive all funds of the Alliance. The latter shall pay all monies ordered by the Board, upon receipt of a draft signed by the President. He shall make an annual report of the condition of the Alliance, at the regular annual meeting, and shall submit his books to the Board for examination at any time they may so order. He shall receive for his services the sum of \$— annually.

No person shall be eligible to membership of the Board of Trustees who holds an elective position in the Carriage Builders' National Association.

ARTICLE 4.—Election of the Board of Trustees.

At the first election of a Board of Trustees the full number shall be chosen, whose term of office shall be determined by lot; and each year thereafter there shall be an election of one Trustee to take the place of one retiring.

ARTICLE 5.—Meetings of the Board of Trustees.

The Board of Trustees shall hold a meeting once every three months, viz., the second Wednesday of October, January, April and July. The annual meetings of the Alliance shall be held on the evening of the second Tuesday in October of each year, or on the evening prior of such other day as may be selected for holding the Carriage Builders' National Convention. The President may call special meetings at such other times as he may deem necessary. All questions arising that may require the sanction of the Board of Trustees when not in session, shall be submitted by the Secretary, in writing, to the individual members. A failure to answer within fifteen days shall be construed as voting in the affirmative.

The Board of Trustees shall submit an annual report to the Carriage Builders' National Association on the first day of the annual convention.

ARTICLE 6.—Initiation Fees and Dues.

Every person joining the Mutual Benefit Alliance shall pay the sum of \$— as an initiation fee, and \$4 dues per annum, payable semi-annually. The money thus paid in shall constitute a fund for the payment of all current expenses of the Alliance, and an immediate relief fund for the benefit of the families of deceased members.

ARTICLE 7.—Permanent Fund.

On the accumulation of \$500 in the Permanent Fund, 10 per cent. of the same shall be donated to the family of a deceased member, as an addition to the Gra-

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MANUFACTURERS OF

FINE COACH and CAR VARNISHES and JAPANS

Dealers in Fine Colors, and Agents in the United States for the Celebrated

HARLAND'S ENGLISH VARNISHES,

Nos. 136, 138 and 140 North Fourth Street, Philadelphia, Pa.

Special attention is directed to the STAR IVORY BLACK of which we are the sole manufacturers. The "STAR" Black is ground in Gold Size Japan, to the last degree of fineness, and as now prepared embodies the following requisites of a first-class Black. FIRST.—UNUSUAL OPACITY OR COVERING PROPERTIES. SECOND.—GREAT INTENSITY OF COLOR. THIRD.—THAT IT DRIES WELL AND THOROUGHLY. FOURTH.—THAT IT MIXES WITH RAW LINSEED OIL OR SPIRITS TURPENTINE WITHOUT CURDLING. Our sales of Black during the past year have shown such a marked increase, we feel justified in advising those who want the best Ivory Black in the market to be sure and get "THE STAR." The different grades are branded as follows: THE BEST.—* * * SUPERIOR IVORY DROP BLACK. SECOND GRADE.—* * THE STAR IVORY DROP BLACK. THIRD GRADE.—* THE STAR IVORY DROP BLACK. FINE COACH AND CAR VARNISHES.—As the result of our Mr. Rau's THIRTY YEARS' experience in the manufacture of Varnishes, together with repeated and length, SUCCESSFUL experiments, we are now prepared to offer to the trade a line of Fine Coach and Car Varnishes unexcelled by any in the market. Any goods not satisfactory may be returned at our expense.

BUY OUR EXTRA COACH JAPAN. IT IS ALWAYS RELIABLE.

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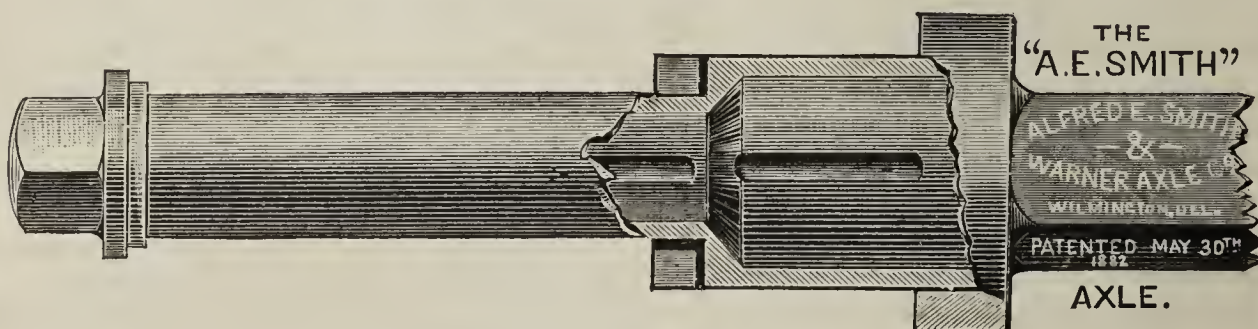
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THE "A. E. SMITH" AXLE

WITH NUT ON THE ARM.

Strongest,
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having a
Perfect Bearing
the Entire Length
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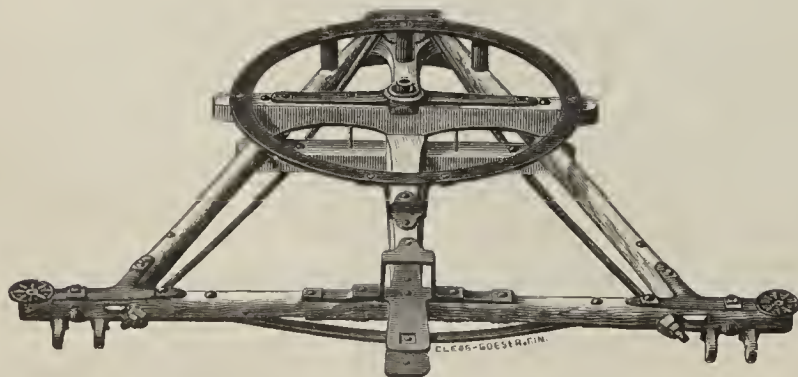
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Simple and Strong in Construction, and not liable to get out of order.
The Cheapest Gear, with Real Merit, in the Market.

FOR SALE BY THE LEADING JOBBERS IN CARRIAGE AND WAGON MATERIALS.

In offering this Gear to the trade, the manufacturers are confident that it must very soon take a place among the best gears in use, and mechanics will undoubtedly see at once the superior advantage of the **Head-block and continuous Truss Rod.** It has been in use two years, and has in all cases given satisfaction.

MANUFACTURED BY
THE CLEVELAND CARRIAGE BOW CO., Cleveland, Ohio.

Also Manufacturers of Leather-Covered Carriage Bows.

Send for Price-lists and Discounts.

MILLER'S ADJUSTABLE HORSE OR JACK.



Screw into the floor joint or movable base. Bo five-eighths hole in bottom of body and set it on table; now you have it in position for all ordinary work except rubbing. For rubbing, put on wash and thumb-nut; now you can tilt, move and revolve work in hand, horizontally, vertically, and every conceivable way to your hand and light. You have

nothing in your way; you do not have to stoop and twist yourself to reach your work; your room is free from barrels, boxes and other rubbish; you can take it out and hang it on a nail in a minute. It will save from one to two hours on every body. It dispenses with sticks and other devices on bodies. It is the thing to bring up body from beginning to end in a painless room. It is all malleable iron, very strong and durable. It is readily convertible into a wheel-jack and stand for painting, stripping, ironing, etc. Send for circular and general information.

For sale by all dealers in Carriage Hardware, etc., and B. Miller, Paola, Kan

ity Fund hereinafter provided, and subject to the rules governing the latter, cepting that it shall be paid to the claimants immediately upon receipt, by the Board of Trustees, of satisfactory proof of the decease of a member whose family entitled to the gratuity.

If at any time the Permanent Fund shall exceed the sum of \$3,000, the surplus all be credited, pro rata, among the members, on the assessment or assessments made thereafter.

ARTICLE 8.—*Gratuity Fund.*

Upon the death of a member of this Alliance, there shall be levied and assessed against each surviving member the sum of \$5, which sum shall be paid to the Board of Trustees to the widow or children, or such other person or persons who were dependent upon the deceased member for support.

Should the deceased member leave a widow and no children, then the entire sum shall be paid to the widow in her own right. Should he leave a widow and children, one-half of this fund shall be paid to the widow, and the remaining half be properly invested for the benefit of the children; but the Trustees may pay the entire sum to the widow if, in their judgment, it should be deemed best.

Should the deceased member leave children, the trustees shall pay over the gratuity to the properly-constituted guardians of the children.

A certified copy of the proceedings before a Surrogate, or other competent court, shall be evidence of the rights of the claimants, and the money shall be paid, as directed, one month from date (?) of the filing with the Secretary the necessary court proceedings.

In case of necessity the Board of Trustees may pay the gratuity, or such proportions as may be required, to the claimants, on the filing of a certificate attesting their rights, signed by seven members of the Alliance.

Nothing herein contained shall be construed as constituting an estate *in esse*, which can be mortgaged or pledged for the payment of any debts or obligations, but it shall be construed as the solemn agreement of every member of this Alliance to make a voluntary gift to the family of each deceased member, and of the Alliance to collect and pay over to such family the said voluntary gift.

The management and distribution of this gratuity fund, and the execution and provisions of this article, shall be under charge of the Board of Trustees.

ARTICLE 9.—*Arbitration.*

All questions in dispute regarding the powers of the Board must be submitted to the Executive Committee of the Carriage Builders' National Association, as Court of Arbitration, if demanded by two members of the Board. The decision of that Executive Committee shall be final. Provided, however, that nothing herein contained shall be construed as empowering action upon the distribution of the gratuity fund to families of deceased members.

ARTICLE 10.—*Dropped Members.*

All persons who shall cease to be members of the Carriage Builders' Association, or who shall fail to pay an assessment within six months of the date of notice, shall forfeit all claims upon the Alliance until reinstated. To be reinstated the applicant must conform to the same rules as those provided for new members, and they shall pay to the Alliance all back dues and assessments unpaid up to the date of reinstatement.

ARTICLE 11.—*Amending Laws.*

No part of these laws shall be altered or annulled except at the regular annual meeting of the Alliance, and by a vote of two-thirds of the members present and majority of the Executive Committee of the Carriage Builders' National Association.

On motion, the report of the committee was accepted, and referred for further action.

* * *

Several official communications were next read by the Secretary, including invitations from President Green, of the Fair Grounds and Zoological Gardens; Hon. Henry Shaw, the beneficent donor of Shaw's Botanical Garden; Secretary Morgan, of the Merchants' Exchange; Resident Milburn, of the St. Louis Chess, Checkers and Whist Club; John Dyer, Esq., Librarian of the St. Louis Mercantile Library Association; Director Woodward, of the Manual Training School; Manager Wallis, of the French Silvering and Ornamental Glass Co.; and Chairman Thompson, of the Illumination Committee.

On motion, the Secretary was instructed to acknowledge and accept, with thanks, the invitations contained in the above-named letters.

On motion of Mr. Lowe Emerson, of Cincinnati, Article I of the By-laws of the Association was so changed as to increase the number of the Executive Committee from five to nine.

The Chair announced, as the next business in order, the appointment of a committee to nominate officers for the ensuing year.

Mr. Lowe Emerson, of Cincinnati, moved that a committee of five be appointed for that purpose; and being requested by the Chair to indicate his choice as to the members who should serve on that committee, he named Messrs. G. H. Burrows, Henry Timken, Henry C. Seabrook, Wm. P. Sargent and F. D. Suydam.

Mr. Emerson's motion was unanimously passed, and the committee was ordered to report at the next session.

The Chair called attention to copies of a memorial to the Senate and House of Representatives of the United States, relative to the preservation and cultivation of certain valuable kinds of American timber; and invited each member to take one or more copies and to give it careful study.

Mr. W. T. Haydock, of St. Louis, a member of the Local Reception and Entertainment Committee, next obtained the floor, and addressed the meeting as follows:

ADDRESS BY MR. W. T. HAYDOCK, OF ST. LOUIS.

MR. CHAIRMAN AND GENTLEMEN OF THE CONVENTION: You will remember that a few years ago, when you met in Chicago—which was my first attendance at your annual meetings—we were handsomely entertained. The year following we met in Cincinnati, and we were *more* handsomely entertained. [Applause.] The year after that we met in Philadelphia, and were *most* handsomely entertained [Laughter and applause]—so much so, in fact, that St. Louis half feared to invite this convention to come here the year following; and it seemed as if all other cities also feared to do so.

The gentlemen in charge, who had been connected with this Association for many years, were thereby led to conclude that such lavish entertainments were too expensive and exhausting, and they asked us, the year afterward, to be a little more careful. In fact, they passed a resolution declaring, I believe, that they would not accept any en-

tertainments from citizens where these conventions were held, so as to put a quietus on so much expense. We in the West began to look up a little then, and to see that we had some sort of show. We are glad to welcome you here this year. We have not been to much expense to entertain you; but Mr. Henry Timken has made a proposition to our local committee, inviting the gentlemen of this convention to take a ride on Friday next, after the convention has adjourned. [Applause.] I see that the *Carriage Monthly Daily* has an extended notice of it this morning. You will find that they have laid out the route, etc. We do not all have patent springs [Laughter]; but I don't think any of us will object to riding with Mr. Timken, whether he furnishes a Timken spring-wagon to ride in, or an elegant carriage. I know he proposes to furnish carriages enough to accommodate all the gentlemen who will go with us—and also the ladies. He says the ladies are especially invited.

[A VOICE: "Does he propose to furnish the ladies too?"] [Laughter]

No; every man is expected to furnish his own lady. On Friday morning, at 10 o'clock, you are cordially invited to be at the Southern Hotel to take this ride. Tickets have been provided, and Mr. Bridges, who is Mr. Timken's right bower, is in the hall here, and will distribute these tickets to any one who applies for them. It is requested that all who decide to go, will please secure a ticket, as a means of keeping the count. It is true that Mr. Timken has a patent spring, but he doesn't care to hire two hundred carriages providing one hundred will do just as well. After you take the tickets, he wants you to be sure and go with him.

We have also an invitation from Mr. Henry Shaw to visit his garden. It is probably the finest private botanical garden in this country. You must not forget to take in the spread which will be provided for you. You will not be expected to ride all day without something to eat. [Applause.] There is also an invitation to visit the Zoological Gardens and the Fair Grounds, which will be included in this ride.

This evening, also, you are invited to visit our Exposition on Fourteenth and Olive-streets. A little more than a year ago we concluded to build an Exposition hall here, and in about two weeks the citizens subscribed \$500,000 to build the hall. [Applause.] We found that was not quite money enough, and so we called again for subscriptions, and in the following two days we secured \$100,000 more. We have already expended on this building the sum of \$600,000; and we think that is doing pretty well for a city that is said to be slow and old foggy like St. Louis. We hope that you will visit our Exposition; and in order to make it as little expensive to you as possible, Mr. Frank Wright will see that you receive tickets, if you will go to him and claim them. We hope that every gentleman present will take a ticket for himself and one for his lady. It will be well for you to go this evening, because to-morrow evening there will be some other entertainment ready for you. [Applause.]

On motion of Mr. R. Mulholland, the generous invitation by Mr. Timken was accepted with thanks. This was followed by three cheers in honor of that gentleman, and loud cries of "Speech! Speech!" in response to which Mr. Timken mounted the platform, where he was greeted by prolonged applause, and he acknowledged the compliment in a few brief and characteristic remarks.

Mr. F. D. Suydam, of Toledo, O., offered the following resolution:

Resolved, That it is with extreme regret that this Association learns of the continued illness of Mr. John W. Britton, our honored ex-President, which has made it impossible for him to leave his home to make the long journey to St. Louis; and we extend to him our sympathy in his affliction, and cherish the hope of his speedy recovery; and

Resolved, That the Secretary be authorized to forward a copy of this resolution to Mr. Britton.

The above resolution was unanimously adopted.

At 1.15 P. M., the first session of the convention was adjourned, to meet next again at 3 P. M.



PRESIDENT McLEAR, OF WILMINGTON, DEL.

Unanimously re-elected for a Third Term.

CHAPTER IV.

Second Business Session.

AT 3.15 P. M., the convention was again called to order, President McLEAR in the chair.

The first business in order was the report of the Committee on Nomination of Officers, whose chairman, Mr. G. H. Burrows, of Cincinnati, presented the following ticket:

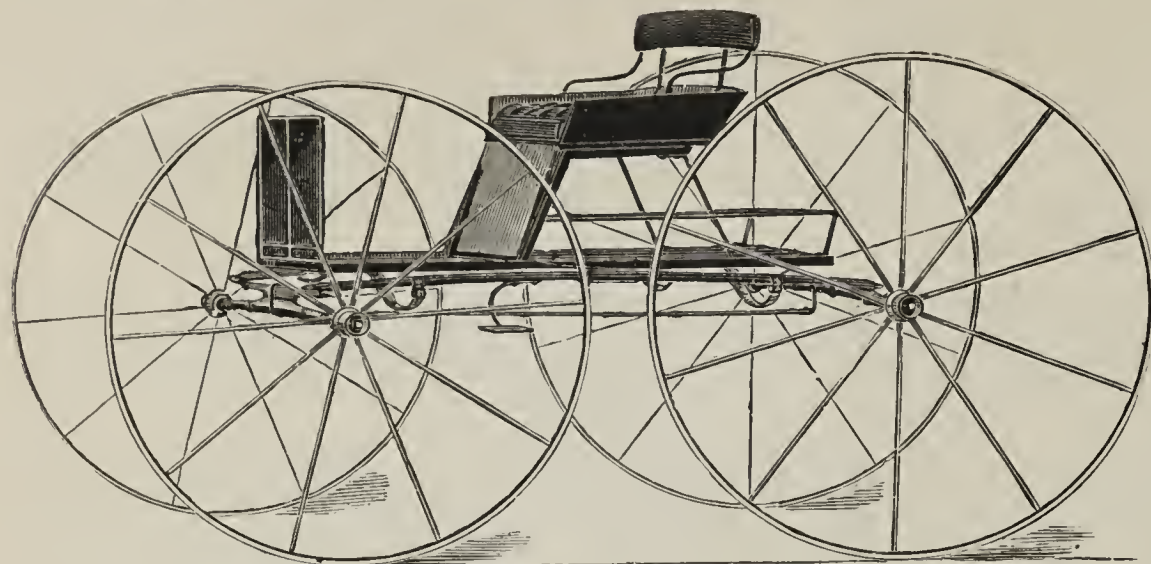
REPORT OF COMMITTEE ON NOMINATION OF OFFICERS.

To the Carriage Builders' National Association:

GENTLEMEN: Your Committee appointed to nominate officers for the ensuing year, beg to submit the following report:

FOR PRESIDENT:—Henry C. McLEAR, of Wilmington, Del.

FOR VICE-PRESIDENTS:—Lowe Emerson (Senior Vice-President), Cincinnati, O.; Wm. P. Sargent, Boston, Mass.; Zenas Thompson, Jr., Portland, Me.;



THE CELEBRATED STORM SPRING BUCKBOARD.

WE ARE THE SOLE MANUFACTURERS OF
White's Pat. Phaeton Buckboard

FOR THE UNITED STATES.

This Buckboard has NO RIVAL for Style, Finish,
Neatness and Durability.

We also manufacture for the Trade

The Celebrated Storm Spring
Buckboard and Buggies,

Fine Leather-top Timken and End-spring Buggies, Two
and Three-spring Phaetons; and we make a SPECIALTY
of supplying the Trade with **Bodies, Gears and**
Carriage-parts generally. Our work is equal
to THE BEST.

CATALOGUES AND PRICES ON APPLICATION TO

The Youngstown Carriage and Wagon Co., Youngstown, Ohio

BILLINGS, TAYLOR & CO.

COLOR MAKERS,

AND MANUFACTURERS OF

Coach and Car Colors and Fine Coach Varnishes,

C. K. MUNSON,
Sup't of Coach Color Dep't.

CLEVELAND, OHIO.

Defiance Machine Works,

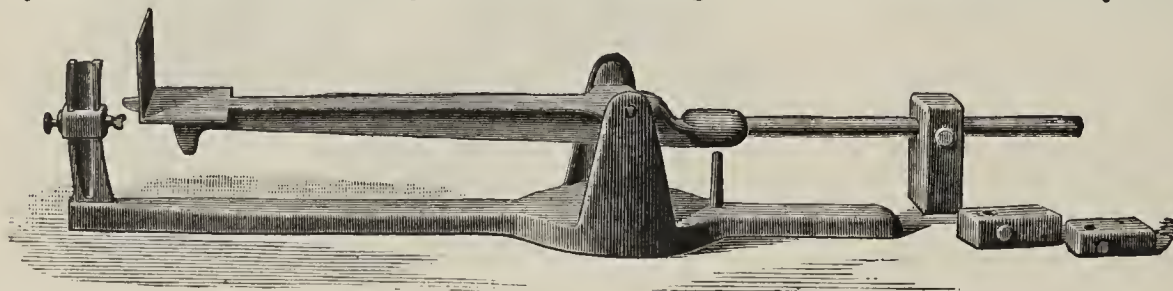
DEFIANCE, OHIO,

MANUFACTURERS OF

Hub, Spoke, Wheel and Bending Machinery,

Moss Patent Drill Grinder, for Grinding Twist or Flat Drills, and

Seymour's Scale for Balancing Planer and Molding Knives and Cutters of every kind.



SEYMOUR'S PATENT PROPORTIONAL SCALE.

Kimball's Patent
Cast Steel Sleigh Shoe.



The Strongest
and Easiest-Running
in the World!

For Sale by Dealers in Sleigh Goods.

GEO. G. LARKIN, Merrimac, Mass.,

Sole Agent for New-England, New-York, New-
Jersey and Pennsylvania.

Fine Work.

Low Prices.

Those who are in need of printed matter of any kind,

Cards, Envelopes, Letter-heads, Note-heads, Bill-heads, Circulars, Charts or Calalogues
will find it greatly to their advantage to bear in mind that this sort of avertising, to be EFFECTIVE, must
gotten up in an ARTISTIC and NOVEL manner. The only objection that has heretofore been advanced
against this class of work is the EXPENSE.

By making a specialty of carriage and wagon makers' printing, which we turn out in great quantities,
we have been enabled to bring the cost within the reach of all.

Write us, stating exactly what you are in need of, and we will send you samples and prices, by return
mail, FREE OF CHARGE. Address

"THE HUB," 323 Pearl-street, NEW-YORK

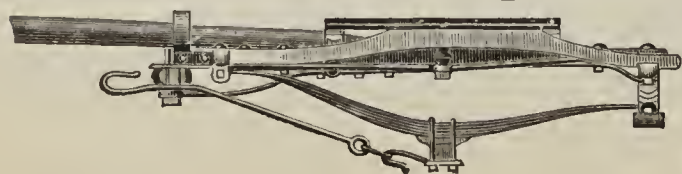
KANKAKEE, ILL., April 26th, 188

MASON WHEEL CO., Crown Point, N. Y.

... We like the Mason Spoke S
and Tenoning Machine purchased of you very
much. It is all you claim for it.

THE CORRIS WHEEL CO.

Side view of
Shaw's Patent



Draft-Equalizing, Portable Pole, Shifting Whiffletree Platform Spring Gearing,

made in the white, for the
Trade, by the

NATIONAL VEHICLE CO.,

RACINE, WIS.

Send for Illustrated Circulars.

ugh Johnson, Detroit, Mich.; Jos. Enders, Louisville, Ky.; Robt. H. Gram, Washington, D. C.; Thos. Connolly, Dubuque, Iowa.; W. T. Haydock, Louis, Mo.; John C. Goold, Albany, N. Y.; J. B. Judkins, Merrimac, Mass.; F. Kimball, Chicago, Ill.; E. M. Hallowell, St. Paul, Minn.; P. E. Studeker, South Bend, Ind.

FOR SECRETARY AND TREASURER:—Frank H. Hooker, of New-Haven, Conn.

EXECUTIVE COMMITTEE:—Wilder H. Pray (Chairman), New-York City; W. W. Britton, New-York City; Wm. D. Rogers, Philadelphia, Pa.; Milo D. Little, New-Haven, Conn.; C. D. Firestone, Columbus, Ohio; Clement Studeker, South Bend, Ind.; D. M. Sechler, Cincinnati, Ohio; Henry Timken, St. Louis, Mo.; F. D. Suydam, Toledo, Ohio.

(Signed by)

Committee on Nominations: { G. H. BURROWS,
HENRY TIMKEN,
WM. P. SARGENT,
HENRY C. SEABROOK,
F. D. SUYDAM.

ST. LOUIS, MO., Oct. 15, 1884.

By request of President McLearn, Mr. Burrows took the chair during the consideration of this question.

On motion of Mr. R. Mulholland, the above report was accepted and the committee discharged; and the full list of candidates proposed was unanimously elected. This harmonious action was followed by prolonged applause.

* * *

President McLearn then resumed the chair, and made a brief address, acknowledging the high compliment tendered him in thus electing him for the third time to the office of President, and pledging his continued efforts to do all in his power for the best interests of the Association.

The Secretary presented a letter from Librarian Cruden, of the St. Louis Public-School Library, inviting members of the Association to visit the library and reading-room.

On motion, the invitation was accepted with thanks.

* * *

The report of the Executive Committee was taken from the table, and action was requested in regard to the following paragraphs contained herein. The first read as follows:

"Your Committee felt that the little interest manifested by those connected with the trade did not warrant the offering of awards for prize drawings for the past year; but they believe that, as the benefits arising from the teachings in the Technical School became more diffused, there will be a renewed interest, and the offers of prizes will be heartily welcomed by our aspiring draftsmen."

On motion of Mr. Lowe Emerson, of Cincinnati, this question was referred back to the Executive Committee, for their consideration and action.

* * *

The second recommendation of the same committee, on which action was requested, read as follows:

"The interest exhibited by inventors and manufacturers of carriage materials in the success of our annual gatherings, has shown itself by the large display of models, etc., which makes an exhibition well worthy a visit by carriage manufacturers. These exhibits have increased in such numbers that it has been found difficult to provide sufficient accommodations for their proper display. That these exhibits are of great value none can doubt, and your committee would suggest that a grand exhibition of carriages, parts thereof and carriage goods, under the auspices of the Carriage Builders' National Association, be held at such time and place as may be decided upon by this Association. An exhibition of this kind could not fail to attract the attention of the carriage trade throughout the country; and, if held in a large city, would net a handsome surplus for the benefit of the Carriage-Builders' Technical School, an institution that is destined to make a lasting impress upon our trade."

On motion of Mr. Thomas Connolly, of Dubuque, this question was also referred back to the Executive Committee, with the request that they report upon it more in detail at the next annual meeting.

* * *

The Chair next called attention to the mention, in the same report, of members deceased during the past year, and he suggested the propriety of some formal action being taken in view of the loss of members so faithful and honored.

In response to the call of the Chair, Mr. Geo. A. Halsey, of New-Jersey, delivered the following fitting tribute to the memory of his fellow townsman and warm personal friend, the late Phineas Jones, of Newark. Mr. Halsey said:

MR. CHAIRMAN AND GENTLEMEN OF THE CONVENTION: It is very sad to contemplate the loss of our members, of those who have been intimately associated with us in our deliberations, and who have taken part in our pleasures; but it is pleasant to revive the memory of a departed friend like Mr. Jones, who was with us at our last meeting. I was his neighbor for a number of years, and was associated with him in business connected with several institutions and also socially, and in every way I found him to be a gentleman of the highest character, strictly honest, in every sense faithful, and devoted to the interest of all who called upon him to act for them. It was my privilege to journey with him to at least three or four of our conventions, and it is therefore particularly sad for me, in coming here, to miss his kindly and genial face.

Mr. President, I think it is fitting that this Association should take recognition of his death, and I therefore have the honor of presenting the following resolution:

The resolution offered by Mr. Halsey was as follows:

WHEREAS: This Association was bereaved, on April 19th last, by the death of one of its ablest and most distinguished associate members, Phineas Jones, of Newark, New-Jersey, in the sixty-sixth year of his age, be it therefore

Resolved, That we deeply deplore the loss we have sustained in the death of a fellow-member so able, energetic and public-spirited, and so universally respected and beloved by all who met him, either in social, business or public relations; and that we cherish in grateful remembrance his amiable presence, the value of his services to the trade, and the unblemished record of his useful and honorable life; and be it also

Resolved, That this tribute to his worth and memory be entered upon the minutes of this meeting, and that a copy thereof, attested by the President, Secretary and Executive Committee, be transmitted to his family.

The above resolution was unanimously adopted.

Mr. Wm. P. Sargent, of Boston, next took the floor, and offered a similar tribute to the memory of the veteran carriage-builder of that city, the late James Hall. He said:

MR. PRESIDENT: The death of James Hall is a loss not only to this Association and to the carriage trade, but to Massachusetts. I was a neighbor and friend of his for many years. We did business side by side for forty years. He came from the shores of Cape Cod when a young man, and served an apprenticeship at blacksmithing with Walter Frost, then our leading Boston builder. He finally commenced business for himself, about the year 1832, and he continued in the business until the time of his death. He was a man most highly esteemed and honored by the entire fraternity, as also by the citizens of Boston. He left a daughter and one son, and the latter has now succeeded him in business. I beg to offer the following resolution for your adoption.

The resolution proposed by Mr. Sargent, as read by the Secretary, was as follows:

WHEREAS: This Association has learned, with feelings of deep sorrow, of the death, on August 22d last, of our honored fellow-member, James Hall, of Boston, Mass., at the venerable age of eighty years and seven months, being, at the time of his decease, the oldest active carriage-builder in the United States, be it therefore

Resolved, That we cherish in remembrance the value of his services, and the record of his useful and honorable life, as one of the pioneers of the carriage trade in New-England; and

Resolved, That this tribute to his memory be entered upon the records of this Association, and that a copy, attested by the President, Secretary and members of the Executive Committee, be transmitted to his family.

The above resolution was duly seconded, and unanimously adopted.

* * *

The Chair next called upon Mr. H. G. Shepard, of New-Haven, to address the meeting in reference to the death of Burritt Manville, of that city. Mr. Shepard spoke as follows:

MR. CHAIRMAN AND GENTLEMEN: One of the pleasures we find in gatherings like this, is to meet those who are associated with us in our calling, to see their familiar faces, and to extend to them the hand of social greeting. But some of our members who were accustomed to meet with us in the past, are not here to-day. We shall see them no more in our conventions, nor greet them again on this side of the river.

Among that number is Burritt Manville, of New-Haven. I do not stand here to eulogize him. The record of his whole life is sufficient for that purpose. He was the architect of his own fortune, and he leaves to his sons a heritage of which they may justly feel proud. He was always ready, as I know by experience, to give a kindly word and to lend a helping hand to those who, like himself, were trying to better their condition in life. It may be said of him, to-day, as has been said of other good men in the past, that "the lives of such men all remind us we may make our lives sublime; and, departing, leave behind us foot-prints in the sands of time."

In the absence of others from New-Haven who might more suitably respond to the call of the Chairman, the duty has been laid upon me of presenting to the convention the following resolution:

The resolution presented by Mr. Shepard was as follows:

WHEREAS: Since our last annual meeting, held in New-Haven, Conn., one of our oldest and most esteemed members, Burritt Manville, residing in that city, was, on March 22d last, suddenly removed from our midst by death, being in the seventieth year of his age, and still actively engaged in business up to the very day of his death; be it therefore

Resolved, That in his death this Association has lost one of its most faithful and honored members, and the carriage trade one of its most energetic associates; and be it also

Resolved, That, as a memento of the esteem of his associates and co-workers, these resolutions be entered upon the minutes of the Association, and that a copy of the same, duly attested by the President, Secretary and Executive Committee, be transmitted to his family.

The above resolution was duly seconded, and unanimously adopted.

* * *

Mr. Lowe Emerson, of Cincinnati, after calling attention to the fact that the name of John Curtis had inadvertently been omitted from the necrology of the past year, although he was one of the founders of the Association, and a most efficient member up to the time of his prostration by illness, continued as follows:

GENTLEMEN: I feel entirely unable to do justice, by anything I may say, to such a man as John Curtis. He was most beloved by those who knew him best. His circle of acquaintance was quite large in Cincinnati, although perhaps not in the country generally. He was an Englishman by birth, and he came to this country thoroughly imbued with the discipline of the carriage business as learned in England. I think it was about 1844 that he landed in New-York; and in 1853 he entered into business with Mr. John Roberts, who is still in business in Cincinnati. From that time until his painful disease incapacitated him for business, some seven or eight years ago, he continued in the trade, respected by all who knew him. All who used his work attested to the worth of the vehicles he made; and those who knew him as a man, attested to his worth personally. He belonged to the Society of Friends. As one of the founders of this Association, his family deserve our peculiar sympathy. Those among the founders know the difficulties that the carriage-builders of the country had to organize this Association and get it into working order. He did his best. He was a warm friend to the Association until his sickness kept him at home. For seven years he lay, not at the point of death, but all the time staring death in the face. He bore up as very few men would under the same circumstances.

Permit me to offer, for your adoption, the following resolution:

The resolution offered by Mr. Emerson was as follows:

WHEREAS: This Association has learned, with feelings of deep sorrow, of the decease, on January 19th last, of its long-suffering associate, John Curtis, of Cincinnati, Ohio, at the age of sixty-five years; and

WHEREAS, He was one of the early friends and founders of this Association, and one of its most active members up to the time of his long and painful illness, which, for seven years past, prevented all participation in business or association with us; and

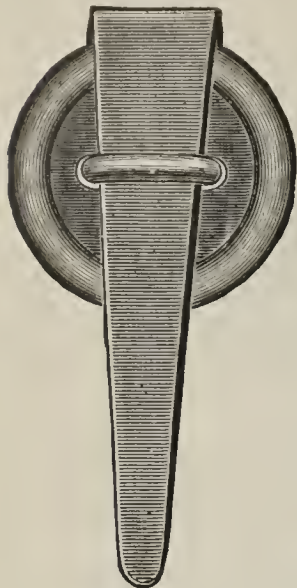
WHEREAS, Partly by reason of his apprenticeship and training in England, he was one of the most practical and best equipped of American carriage-builders; be it therefore

Resolved, That we cherish the memory of the remarkable industry, activity and generous hospitality which characterized him as long as health permitted; that we take to ourselves the lesson of patient resignation with which he bore his afflictions; and that, as a memento of the esteem of his associates and co-workers during years long past, these resolutions be entered upon the minutes of this Association, and a copy of the same, attested by the President, Secretary and Executive Committee, be transmitted to his family.

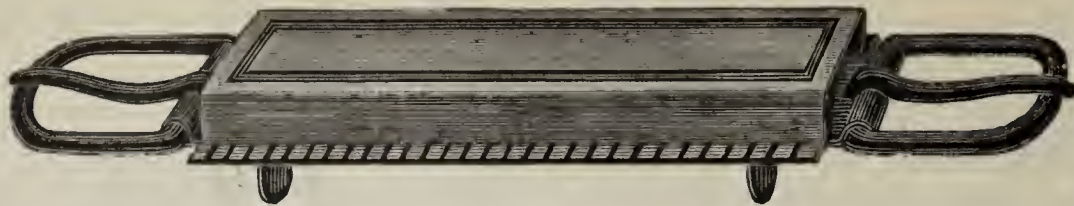
The above resolution was duly seconded, and unanimously adopted.

STATISTICS OF THE CARRIAGE TRADE.

Mr. Emerson next called attention to the following clause in the report of the Executive Committee, which he thought merited further at-



CRANDAL'S IMPROVED
Wagon Curtain
Patch.
Patented May 4th, 1880.
Re-issued Apr. 3d, 1883.



Patent Metal Buckle Loops.

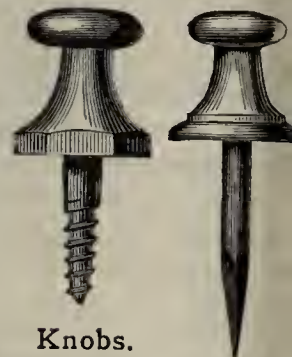
GRANDAL, STONE & CO.,
BINGHAMTON, N. Y.,
Manufacturers of a Fine Line of
CARRIAGE TRIMMINGS.



Crandal's Patent Curtain Strap.



Knob Eyelets, with Leather
Patented Dec. 3d, 1872.
Re-issued Sept. 16th, 1877.
Patented May 4th, 1880.
Re-issued Apr. 3d, 1883.



Knobs.

Hoopes, Bro. & Darlington, Limited,
WEST CHESTER, PA.,

offer something new. They are making Warner Wheels
with Rouse Bands. This is the Strongest and Best wheel
in the World. Send for sample set. Prices reduced.

CARRIAGE, WAGON,



AND SEAT

SPRINGS.

Licensed makers of Brewster, Fetzer, Timken, Parsons,
Pennoyer and Groot Patent Springs.

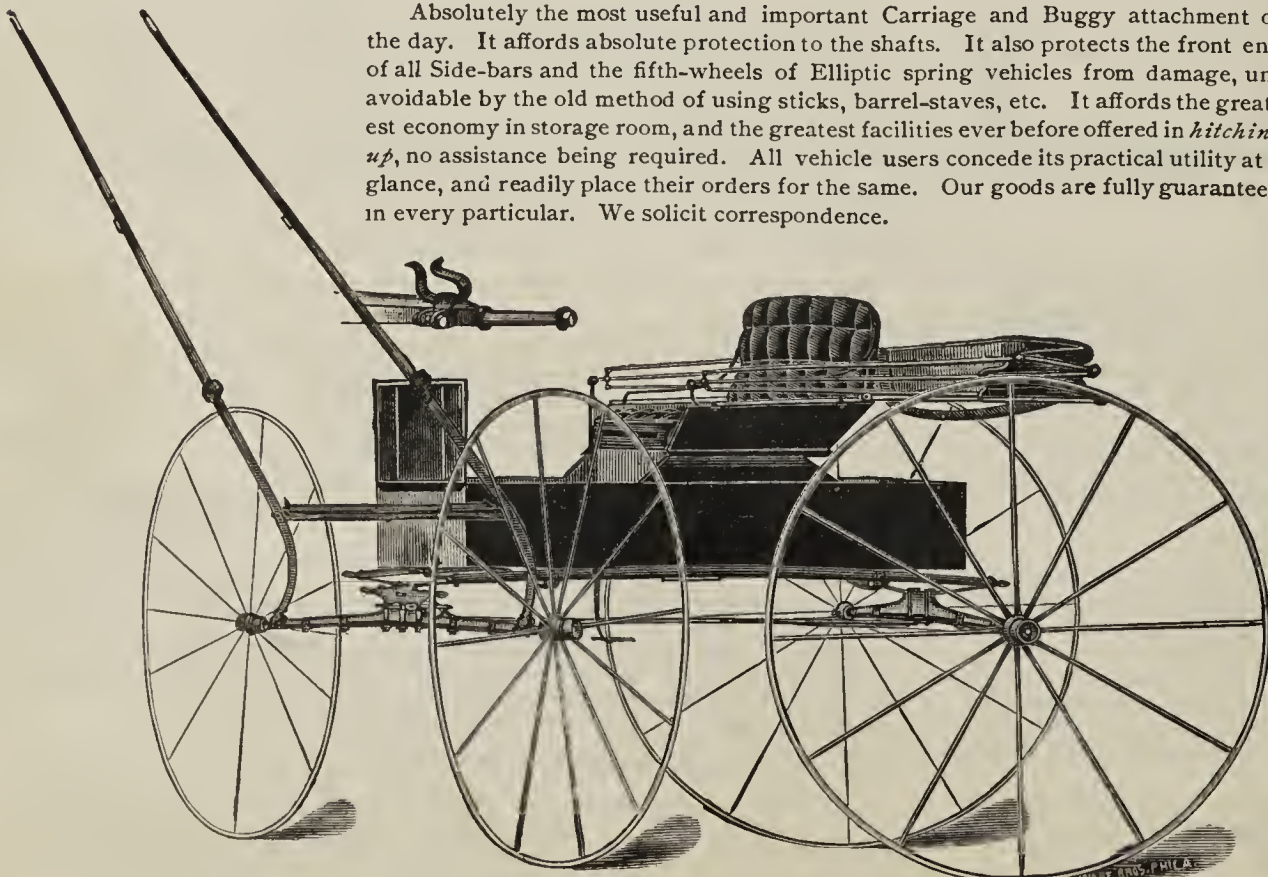
Partner Wanted.

A practical business man, having some capital and understanding the carriage business, is offered the opportunity to invest in an established concern. The business is successful and growing. Established ten years ago. The business is more than the present partners can manage and do it full justice. This is a really good opening for the right man. Particulars by addressing,

Lock Box 1542, New Britain, Conn.

THE VEHICLE SHAFT SUPPORTER.

Absolutely the most useful and important Carriage and Buggy attachment of the day. It affords absolute protection to the shafts. It also protects the front end of all Side-bars and the fifth-wheels of Elliptic spring vehicles from damage, unavoidable by the old method of using sticks, barrel-staves, etc. It affords the greatest economy in storage room, and the greatest facilities ever before offered in *hitching up*, no assistance being required. All vehicle users concede its practical utility at a glance, and readily place their orders for the same. Our goods are fully guaranteed in every particular. We solicit correspondence.

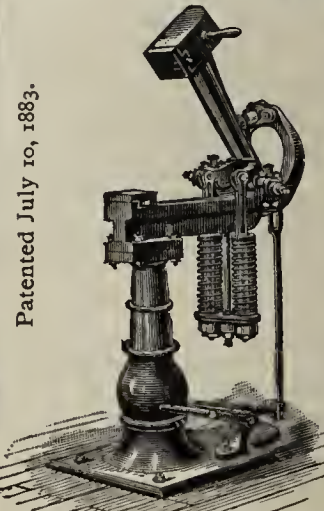


The Vehicle Shaft Supporter Mfg. Co., 7 and 9 West Third-st., Cincinnati, O.

IMPORTANT!

(See page 584.)

**THE STANDISH IMPROVED
FOOT POWER HAMMER or OLIVER.**



Patented July 10, 1883.

Specially adapted to making carriage and other light forgings for welding in dies having impressions cut to the shape of the work required. Superior to power hammers, as the hammer is under as perfect control as the smith's hand-hammer, and are used for welding Dashes, Shifting Rails, Top Props, shaping and forming all small work equal to drop forgings. Send for circulars.

What Builders say of it.
Will pay for itself in two months.—HAYDOCK BROS., St. Louis.

Manufactured by the Capital City Machine Works, Columbus, O.
AGENTS.—S. A. Smith, General Agent, 154 Lake-st., Chicago, Ill.; Simmons Hardware Co., St. Louis, Mo.; Day Bros., 419 and 421 N. Second-st., Philadelphia, Pa.; H. Prentiss & Co., 42 Dey-st., New-York; S. D. Kimbark, Chicago, Ill.; T. B. Rayle & Co., Detroit, Mich.; A. Burton & Co., Chicago, Ill.

ention and some formal action on the part of the convention. Here is the clause referred to :

"A general knowledge of the trade is desirable ; and, while the census statistics furnish certain data, these are not always reliable, owing to the ignorance of those who compiled them concerning the technics of the trade ; and your committee would suggest that some action be taken toward taking a census of the trade at an early day."

On motion of Mr. Burrows, the Executive Committee was ordered to take such steps as they might deem desirable to effect the purpose named, including the preparation, and distribution throughout the trade, of blank forms indicating the statistics required.

* * *

The Chair now declared the regular order of business completed, and stated that the next and last session of the convention would be mainly devoted to two questions, namely, the proposed Mutual Benefit Alliance and the Technical School for Carriage Draftsmen and Mechanics.

Mr. G. H. Burrows, of Cincinnati, then secured the floor and made the following brief address :

MR. PRESIDENT AND FELLOW-MEMBERS : I do not want to make a speech. I am getting ready to talk to-morrow about the School matter. But I want to call the attention of you all to that drawing on the wall just opposite me. [Indicating drawing]. Now, I don't know much about drawing, but that piece of scroll work has touched me in more ways than one. I was talking about it with Professor Gribbon a few minutes ago, and he gave me its history. He said it was executed by a boy 19 years old, who works ten hours a day, and who lives in a tenement house, in a room with no windows, where the only light comes through the hall door. He gave that boy a little sketch for study, and gave him a large sheet of paper ; and that scroll-work was done by that boy under such circumstances, after a hard day's work, and while sitting in a room without light, and with his back against the bed. It speaks of the value of this institution,—one institution at least, founded by this Association, which we can justly be proud of. I only ask you now to look at it, to think about it, and then be ready to talk school to-morrow. [Applause.]

A long and spirited debate on the temperance question took place at this point, opened by Mr. D. W. Haydock, of St. Louis, who offered a fifty-dollar check to the Technical School Fund on condition that no wine should be bought by the Association for use at the banquet to be given on the following evening. The discussion was an amiable but highly exhilarating one ; and when it had been satisfactorily explained that all wine which Mr. Haydock would find upon the banquet table had either been presented by the local entertainment committee of which he was a member, or had been ordered by individual members, he surrendered his sword and buckler very gracefully, saying : "Well, then, the Technical School shall have my fifty-dollars anyhow !" This announcement was received with prolonged applause, during the continuance of which, Mr. Pray, the Treasurer of the School Fund, duly captured the check.

At 5 P. M., the meeting then adjourned.

CHAPTER V.

Third Business Session.

THE convention reassembled, for its third business session, at 10.30 o'clock on the morning of Thursday, Oct. 16th, President McLear in the chair.

The first business in order was the consideration of the report of the committee on the proposed formation of a Mutual Benefit Alliance, as presented at the second business session. The question was opened by Mr. W. N. Fitz-Gerald, of Newark, N. J., and was debated at considerable length, the principal speakers being Messrs. R. Mulholland, — Quinby, G. H. Burrows, Lowe Emerson, H. G. Shepard, W. T. Haydock, Jared Maris, H. A. Harris, Edw. Storm, H. R. Thompson, Chas. B. Sherron, and Wilder H. Pray. Great diversity of opinion prevailed as to the advisability of inaugurating such a movement in connection with the Association, and the proper conditions to be observed in the rules and regulations in case it should be determined upon. Several motions were lost, and it was evident that more time was needed for the members to formulate their ideas on the subject before it could be presented with any hope of success. On motion of Mr. Lowe Emerson, the report of the committee was finally accepted and laid on the table.

The subject of the Trade School being declared next in order, it was opened by Mr. G. H. Burrows, of Cincinnati, who spoke as follows :

OPENING ADDRESS BY MR. G. H. BURROWS, OF CINCINNATI.

MR. PRESIDENT AND GENTLEMEN : Many will no doubt ask us when we return home, "What do you members of the Carriage Builders' Association do in your meetings? Do you make any money there?"

I for one like to belong to an association of business men who can meet once a year, shake hands, eat a square meal, look each other in the face, make up all past differences, and acknowledge that they are friends. We all want as much business as we can get, and we want to make all the money we can outside ; but, when we come here, for once we ought to be content to let money-making alone. [Applause.] I am proud of this organization now, in the midst of its good times, and I am glad it can consider something that has in it more than a money value,—something that cannot be measured by dollars and cents.

I feel that, in the wonderful self-sacrificing labors of the members of our Committee on Technical Education, we have something in the way of an example of which we may all be proud. When we consider that, for several years, they have labored faithfully in building up our Trade School, and raising it to the high standard which it has now attained, so that young men may receive a better training than their fathers had before them, they certainly deserve our hearty praise. [Applause.] I am glad to know that we have such men as Mr. Britton, and Mr. Pray, and Mr. Fitz-Gerald, and Mr. Houghton, and the estimable teacher, Mr. Gribbon, who have thus been at work for a number of years in doing that which many of us would have undoubtedly shirked. It is a thankless task to go two or three nights in a week to help instruct young men to do something which has in it no apparent money value ; but it is a task that must be satisfactory to those who engage in it, when they finally see the result of their labors. In connection with the free-hand drawing on the wall which was alluded to yesterday, I think it derives added interest when we are told, as I was to-day, that it is the work of a blacksmith who worked ten hours a day during the week,

and did this on Sunday. Though I am considerable of a Sabbatarian, I could not help saying that he had much better be doing that than loafing around the streets.

If this Association, with so small an expenditure of money, can effect results such as are shown here to-day, it seems to me that it is money well invested, and that we ought to take a lively interest in this Carriage Builders' Association which can point you to such a monument of work as this. [Applause.]

Our school should now have a branch in every city. It should have a branch in Cincinnati, and another in St. Louis. The teacher of the school wishes me to call special attention to the corresponding class—the Chautauqua idea. For one, I plead guilty to not having done my duty in our factory in regard to this matter. You will remember that the price is only \$2.00 for a journeyman and \$1.00 for an apprentice for a year. By the payment of the sum required, the journeyman or the apprentice becomes a member of the corresponding class in the school, and receives nearly as much benefit as can be derived from regular attendance at the school. Of course, this slight fee does not pay the expense, but it goes toward doing so, and at the same time goes a great ways toward carrying the advantages of this school out into the country at large. I am requested to remind you of this fact, in order that, when you go home, you may enter into the good work and try to get the boys and journeymen, so far as is practicable, to become corresponding members of the school in New-York.

Subscriptions toward the support of the school and its corresponding classes are now in order. The amount needed has been suggested in the report of the Treasurer, already read to you. It is my pleasing task to bring this fact before you for your consideration, and I expect that it will meet with your hearty sympathy and support. [Applause.]

ADDRESS BY MR. LOWE EMERSON, OF CINCINNATI.

MR. CHAIRMAN AND GENTLEMEN : I do not think it well for me to say much on this subject, as I have had something to say about it in each convention, from the time of the first appointment of the school committee up to the present time. But I do want to say this : I want each and every member of this Association to feel that this is *his* school. It is not the school of the committee. It is not the school of the officers of the Association. It is not the school of the professors. It is your school, and it will succeed or fail, as you choose to make it. Each and every member of the Association should feel that he has an interest in the school, and that he should assist in supporting it.

One or two members have this morning suggested to me that it would be appreciated if the professors should give some instruction in reference to matters connected with the accessory trades, the manufacture of buttons, knobs, laces, coach-lamps, and that sort of thing. It has been the intention to do this, and if any one present would like to have some knowledge of what is already being done in this line, I can show some very good drawings of coach-lamps in the exhibit here. We have always had this in view, and before long we hope to do more in this direction. You who are in the accessory trades may feel that some of the things you are producing are not of as perfect design as they should be. I will undertake to say that we may sometime be able to help you correct these defects and produce better mechanical work, if you will only give us the opportunity to try.

I think our school will to-day compare favorably with the schools on the other side, especially when we consider the short time it has been in existence, and the length of time they have been in existence in England and France. It is our hope and intention, if the school is supported and sustained as it should be, that, at a time not far distant, we shall not only be able to help you turn out better goods, but turn out superintendents capable of taking charge of any factory on this continent or any other continent, and turn them over to those who need their help and furnish the necessary capital. That is what the school is for. It of course takes time to build it up, but we are doing what we can.

Now will you be kind enough, each and every one of you, to take home the idea that we need money to support this school and must have money to support it or the school will cease—not this year, or the next year, or the next year perhaps ; but it cannot reach that capacity of manhood that we desire without your continued and generous support. We hope that you will give us your subscriptions. We would be glad to solicit money from those who have not contributed, and we hope you will be kind enough to send in your subscriptions for this purpose, and that you will contribute annually, as you can afford to, \$5, \$10, \$15, \$20 or \$100 a year. Mr. Pray will thankfully take any subscriptions that may be handed in to-day.

As I have already said, and as you should all understand, this is your school, and if you want it sustained, sustain it ! [Applause.]

ADDRESS BY MR. D. W. HAYDOCK, OF ST. LOUIS.

MR. CHAIRMAN AND GENTLEMEN : I want to say a few words. I overheard a little conversation last night in regard to this school. I am not going to tell you the gentleman's name. In fact, I do not know it ; but I would not tell you if I did. He said this school matter had got to be too prominent. Now, I once heard a man ask : "Of what use is algebra ? It is like the fifth-wheel to a wagon !" But how ignorant that man was. Algebra is the very foundation of all science. So of our school. Just what benefit we are going to get out of it we may not know. We must perhaps take it a little on faith. But these gentlemen who have represented the school so earnestly for a number of years past must know something about it, and must be able to see a little further into the future than some of the rest of us. I beg of you to come forward liberally with your subscriptions here to-day. While the subject is being discussed, and while the iron is hot, let us strike. In regard to the accessory trades, they should come forward too, for they also will reap and do reap benefits from this school. Consequently, they should give it a better show, and year by year these benefits will multiply.

ADDRESS BY MR. J. B. JUDKINS, OF MERRIMAC.

MR. PRESIDENT : I suppose that the main object of the Carriage Builders' Association and of this convention is to elevate the industry we represent ; and, as it has been stated here to-day that ninety-eight per cent. of the carriage-makers die insolvent or poor, it strikes me very forcibly that it would be a very good thing for us to leave to our boys something else besides money. If it is a fact that only two per cent. of the carriage-makers die solvent, then our widows and our boys are left in a very bad way. But this Technical School gives us the opportunity to leave our boys something to work on.

I said something on this subject in our convention last year, and something in a personal way. I have a son who spent a year in your school, and therefore I can speak from experience as to the benefits derived by him, and by the concern I represent, from his having been a member of the school. I know what it did for him, and I speak of what I know. I believe this school matter is the greatest move in connection with carriage-making that has ever been made in this country. I believe it has done more, and will do more to elevate carriage-making in the United States than all other efforts that have been put forth. [Applause.]

You will excuse me for commenting on a personal matter at this time. I have spoken about my boy. When he came back from the school, he made a catalogue of all the carriages we manufacture, some thirty different styles. He did all the sketching himself. His sketches I sent to Philadelphia, and Messrs. Ware Bros., I believe, finished the catalogues for us, and those sketches were pronounced by judges and experts to be very fine. Now, all the education that boy ever had in this particular line was at your Technical School ; and I feel that I was thereby amply repaid for all the expense I was to while my boy was at school ? Bear in mind, gentlemen, those of you who put forth catalogues, that they are very expensive, and I certainly saved quite a large sum of money by having those sketches made by my boy. I feel that I can therefore stand before you and speak of the success already attending the school, and of the benefit it can be to all members of our Association who will utilize the advantages it offers.

It depends now upon the members here to-day, whether they are prepared to sustain it or not. I, for one, will do what I can in my feeble way, both in words and in money ; and I hope that every man who feels an interest in the future of the carriage-making industry in this country will appreciate that there is a burden and a responsibility resting upon him, to do what he can toward maintaining it hereafter. [Applause.]

ADDRESS BY MR. H. G. SHEPARD, OF NEW-HAVEN.

MR. CHAIRMAN AND PRESIDENT : The gentleman who last spoke hit the nail exactly when he said that the object of this school was to help carriage-makers to build better work. It is doing that very thing—doing it to-day. I will relate a little instance. About six months ago a man came into my shop and solicited work. He said he understood wood bending. I showed him some specimens of work and asked him if he could do that. He said, "Oh, yes ! I can do better than that." I wanted to know where he had learned the art of wood bending, and he said he had learned it from a lecture delivered in the Technical School of New-York. I asked him who delivered the lecture. He said "I don't know ; I read it in the journals." From this example, gentlemen, you can see that the work and influence of this school are not confined to New-York. They are far-reaching, and the carriage-makers derive benefit from it outside of the school and its regular pupils. [Applause.]

S. R. BAILEY,

MANUFACTURER OF

FINE SLEIGHS

IN THE WOOD AND IRON.

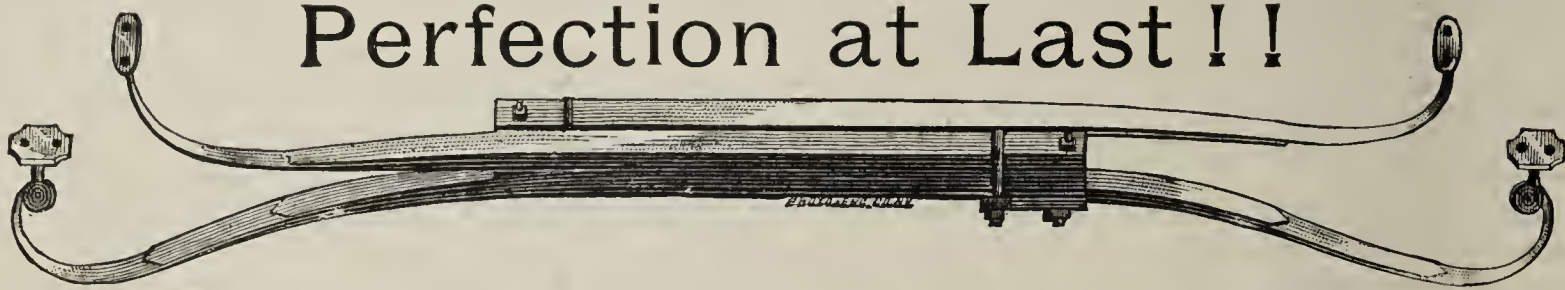
If you are in any way interested in sleighs it will pay you to correspond with me, as I have original designs and very important improvements.

Formerly of Bath, Me.; later of
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AMESBURY, MASS.

Established 185

Perfection at Last!!



The L. & A. Adjustable Side-Bar Spring.

We claim for this Spring the following advantages over other springs, and know that one trial will convince manufacturers that half their good qualities have not been enumerated:

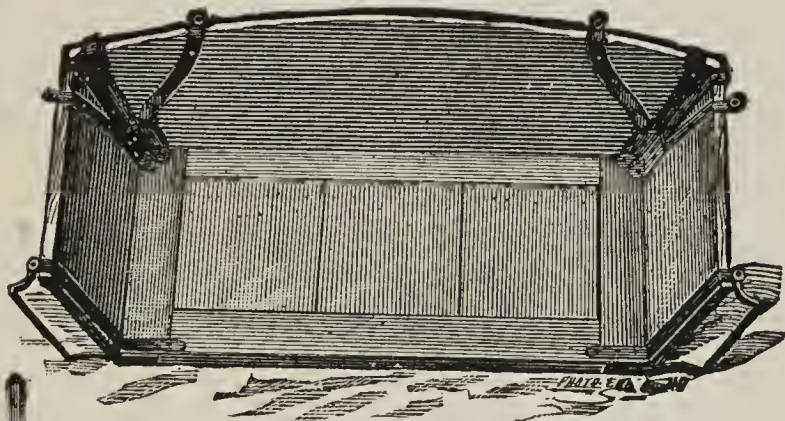
1st.—It is a longer Spring, consequently an easier rider.

2d.—It is adjustable to different widths of bodies or side-bars, or both, thereby saving expense of carrying a large assortment of sizes of springs, and the annoyance of unnecessary delay.

3d.—It is so constructed as to relieve itself when overloaded, an advantage possessed by no other spring in the market.

4th.—It rides as easy with one as with two or more passengers.

5th.—IT IS WARRANTED TO GIVE SATISFACTION.



The Best Seat in the Market.

We make them plain, or ironed for Standard Shifting Rail as shown in cut.

Sectional Views show manner of attaching our "Solid Foot Dash." It is adjustable, and has no bolt-head to mar its face.



The "L. & A." Spring attached to Gear.

It hangs the body as low as any other Side-Bar Spring, and is as easy a rider as the Elliptic.

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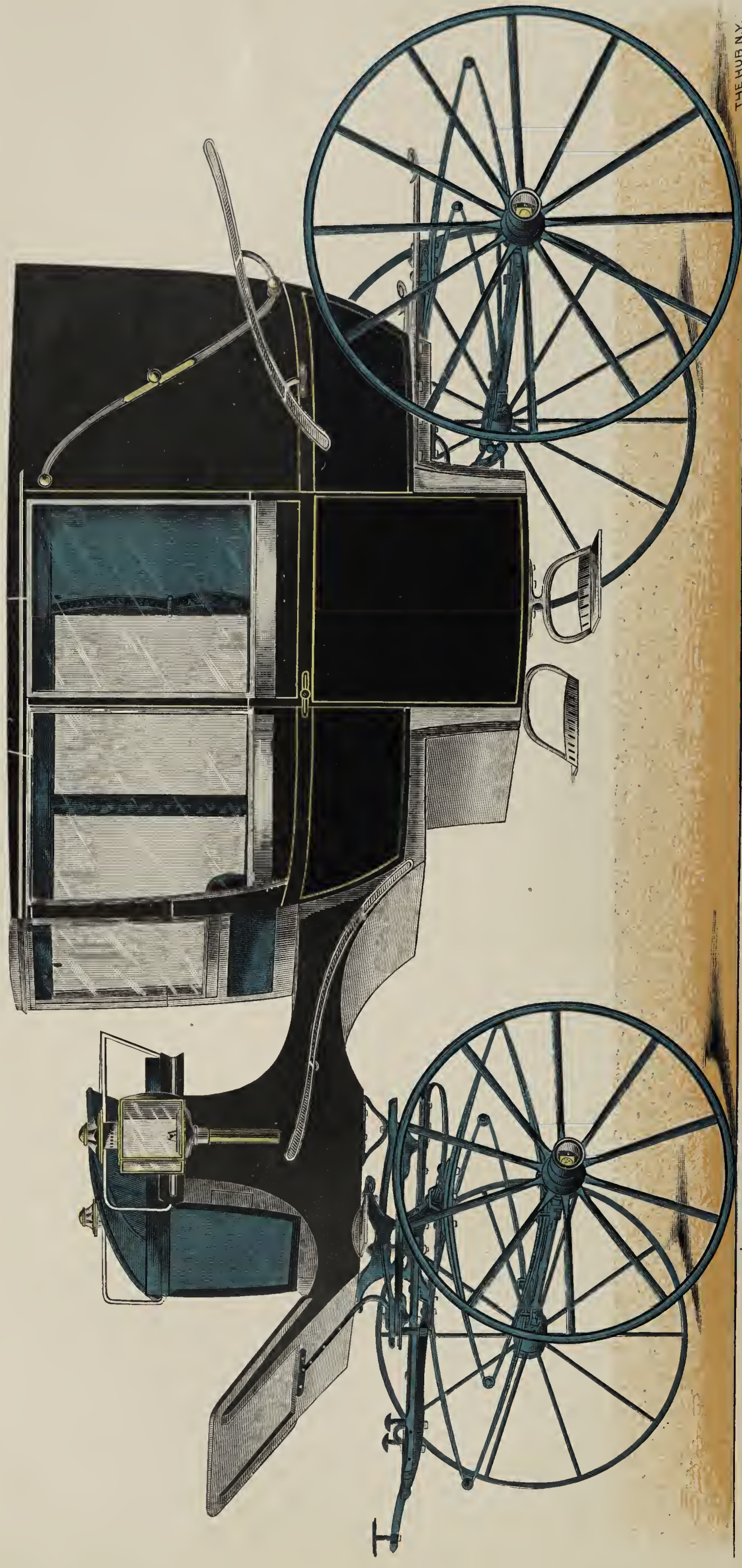
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THE HUB N.Y.

COLORED PLATE NO. LIV. GLASS-FRONT LANDAU: NEW-YORK STYLE. SCALE, THREE-QUARTER INCH.

The Hub's

Fashion Plates: Winter Season, 1884-5.

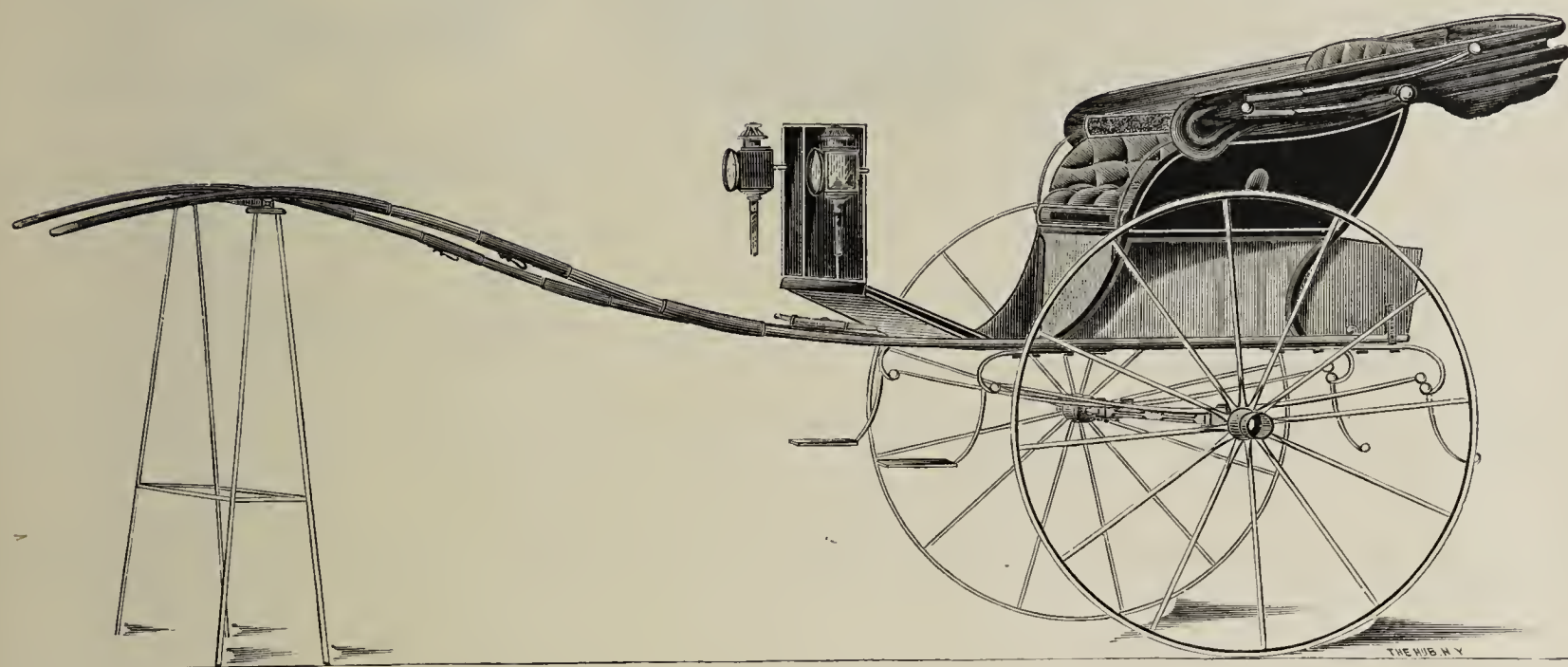


Plate No. 67. TILBURY, WITH OCEE CORNER-PILLAR.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 620.



Plate No. 68. FOUR-PASSENGER STANDING-TOP WAGON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 621.

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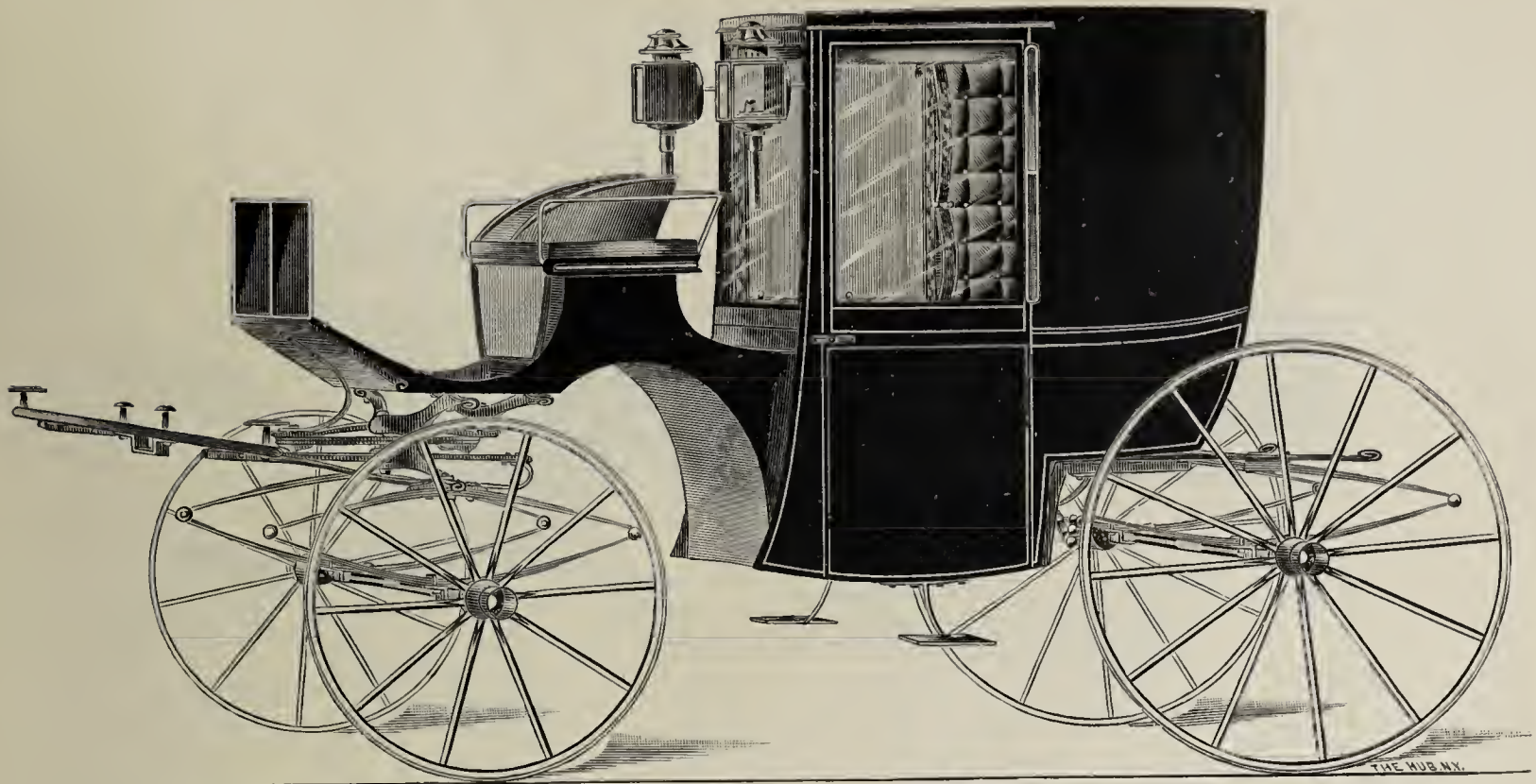


Plate No. 71. MEDIUM-SIZE BROUCHAM: FRENCH STYLE.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 622.

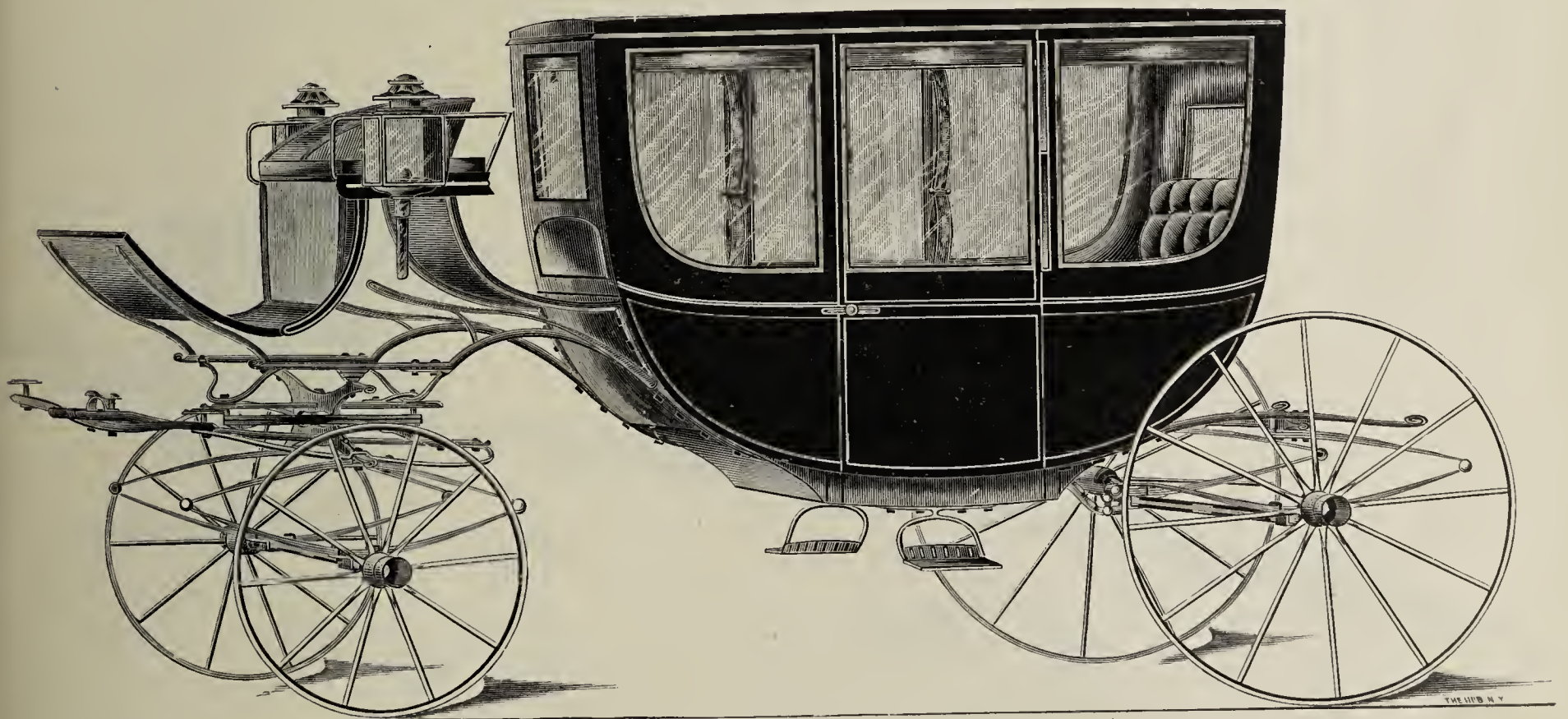


Plate No. 72. EIGHT-GLASS COACH, WITH FULL SWEEP.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 623.

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A PRESIDENTIAL CAMPAIGN IN THE EQUINE REPUBLIC.—DRAWN EXPRESSLY FOR "THE HUB," BY GRAY-PARKER.

The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, DECEMBER 1, 1884.

No. 9.

THE HUB'S PORTRAIT GALLERY.

THE LATE JACOB SEBASTIAN, OF NEW-YORK CITY.

(See Portrait accompanying.)

"Died suddenly, of heart disease, at his home in New-York City, on Thursday, Sept. 18th, Jacob Sebastian, aged 60 years."—*The Hub*, October, 1884.

THE late Mr. Jacob Sebastian, the eminent and highly esteemed wagon-maker of this city, whose portrait we present on this page, was born in Drysen, Bavaria, on June 15, 1824, in which city he served a regular apprenticeship in the woodworking branch of wagon-making. At the age of 26 he emigrated to this country, and worked as a journeyman until the year 1853, when he associated with Mr. Lewis Roth, and started a wagon shop. This partnership was dissolved in 1855. Mr. Sebastian then joined with Mr. Peter Lanzer, who kept a wagon shop in Melrose, N. Y., and remained there until July 1, 1857, when he formed a copartnership with Mr. Louis Saal, and opened a shop on Third-avenue in this city, between 47th and 48th-streets, under the firm name of Sebastian & Saal.

Mr. Franklin B. Gardner, lately editor of *The Hub's* paint department, was in the employ of Messrs. Sebastian & Saal for seven years, and it was at the factory last-named that we first made his acquaintance. In an article communicated by Mr. Gardner to the November number of the *Blacksmith and Wheelwright*, he pays a fitting and hearty tribute to the memory of his old employer, from which, with some condensation, we quote the following interesting facts. In substance, Mr. Gardner says:

"The work sent out was truly wonderful in quantity and quality. Lager-beer wagons occupied the principal attention of the firm, and not a brewer in this locality was unrepresented in Sebastian & Saal's list of customers. One principal cause of the firm's success in this line consisted in the new inventions constantly emanating from the fertile brain of Mr. Sebastian, including the coupling-bars of the springs, the spring-seat, made to turn over while loading, the sunshade or top, and other minor improvements too numerous to mention. There were also turned out trucks of every description, from the light dry-goods trucks to the monster ones used by Herring & Co. and other safe-makers, and also the metal trucks of Phelps, Dodge & Co., with axles ranging from 3 to 5 inches of solid square iron and wheels in proportion. Heavy work was a leading feature, and the eye of Mr. Sebastian seldom failed to make the proportions correct, or to note where machinery could be ad-

vantageously used. His active brain was also employed for the benefit of circus men. Two-thirds of the circus work of this country came out of his establishment. The noted Roman chariots of Barnum's Hippodrome were improved by his patent draw-bar, and by steel springs which prevented the riders from falling in their perilous flights around the ring. It was this keen insight into the requirements of each and every case that chiefly gave him preëminence as a wagon-builder. Patent dumping wagons and carts, and, in short, all peculiar designs of draught vehicles that came under his influence were certain to leave his hands with something about them in the way of improvement. The monster procession

chariots of Barnum's show, in which a double-story body was fitted with gear to raise or lower the whole body; the mammoth chariot known as 'Cleopatra's Barge' belonging to Adam Forepaugh's show, and a score of other vehicles, similarly remarkable, were successfully reproduced from sketches, under the sole direction of Mr. Sebastian; and all customers who have been supplied from his establishment testify to his fine perception of mechanical requirements, his perfect workmanship, and the zealous care he gave to every detail of construction and finish."

Mr. Gardner adds: "That he was a kind and generous employer is proved by the length of time that many, and I may say at least one-half, of his employes remained with him. I worked in his paint-shop for seven consecutive years, and I am glad to say that I likewise retained the friendship and fatherly advice of 'the old man,' as he was respectfully called by all the workmen, for ten subsequent years, or up to the time of his demise."

The firm of Sebastian & Saal continued until May 1, 1874, at which date the copartnership was dissolved, and Mr. Sebastian then rented a large building on 43d-street near Third-avenue, where he continued on his own account. This change seemed only to further stimulate his activity; and his business, already

highly successful (as Mr. Gardner has described), here increased so rapidly in magnitude that new and larger quarters were demanded, and Mr. Sebastian finally determined to build a new and larger factory, specially designed for his requirements.

In January last this new factory was completed, and he had good reason to be proud of it. It is located on 43d-street, nearly opposite his former works. It affords ample room for present needs, and is furnished with the latest improvements in the way of labor-saving machinery and modern conveniences of all kinds, including electric lights, etc. The regular working force numbers eighty men, who are kept constantly employed on full time, in spite of dull times. There are nine forges in operation in the main smith-shop, besides six more in the spring-shop,



THE LATE JACOB SEBASTIAN, OF NEW-YORK CITY.

DECEASED SEPT. 18TH, 1884.

(See Obituary Notice accompanying.)

for it should be added that it is the custom of this house to make all its own springs, and also for the outside wagon trade. The total number of vehicles built annually is upward of four hundred, embracing all kinds of business wagons, carts and trucks, and circus work of all varieties, much of the latter being of a highly elaborate character. Among the many proprietors of circuses who have been the customers of Mr. Sebastian, and who will no doubt miss his ready appreciation of their peculiar needs, may be mentioned Messrs. P. T. Barnum, Adam Forepaugh, Wm. C. Coup, Orin Bros., Sells Bros., and Wm. W. Cole.

The great business established by Mr. Sebastian will be continued by the administrator of the estate, Mr. Charles A. Stadler, of the firm of Neidlinger, Schmidt & Co., maltsters, of this city; and we trust that it may long thrive as it did under his able management, and long remain an enduring monument to his mechanical and executive ability. The precise form in which it will be continued has not yet been determined upon, but Mr. Sebastian's name will unquestionably be retained in the title of the new firm or company.

THE HUB.

Founded in 1869, and devoted to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paintshop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Élysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.



DRAFT-ROOM.

DESCRIPTIONS OF FASHION PLATES.

GLASS-FRONT LANDAU: NEW-YORK STYLE.

(See Colored Plate No. LIV.)

OUR Colored Plate this month represents one of the most popular styles of landaus built in New-York at the present time. It is of medium size, as will be seen by our list of dimensions given later.

There are two methods now in common use for folding the tops of such landaus, namely: the "Lohner system" and the so-called "French system." In some factories the "Lohner system" is used exclusively, while others equally prefer the "French system;" and in others again, both systems are employed. For livery work we prefer the "Lohner system;" but, for private use, the "French method" seems most appropriate, and the body can be made shorter, and a regular coach boot can be applied, giving the vehicle a more stylish appearance.

Regular coach boots have of late been applied to landaus where the top is constructed after the Lohner system. The sides of such a boot are then made of two sections hinged together. This is an improvement

over bodies having front pillars only. The only disadvantage is the joint on the side. This is scarcely noticeable when the carriage is new, but is liable to prove somewhat of an eyesore when the vehicle has been used for a short time.

The side pieces or uprights on the bows for the rear top are made either of iron or wood, the former, in our judgment, being preferable over the wooden ones, as they are lighter, yet quite as strong.

The front quarter frames may be stored either in the boot or in the doors. The placing of the frames in the door is more convenient, but it necessitates heavier timber for the body, and, for this reason, it has been abandoned by many builders. Bent wood is used for the rear corner-pillar and bottomside combined.

Careful framing of a landau body is essential to its wearing qualities. Any carelessness on the part of the body-maker will lead to defective results, such as the opening of joints after it has been in service but a short time. Careful framing, and strong rocker-plates, well put on, are necessary conditions in order that such a body may stand the test of even ordinary wear and tear.

Dimensions.—Width of body at lock and hinge-pillar, 52 in.; ditto back, 43 in.; ditto front, 43 in.; and ditto at toe-board, 34½ in. Turn-under, 4 in. Rocker-plates, 4 × ½ in., fastened with 2 in. No. 20 screws. Height of front wheels, 3 ft., and rear, 3 ft. 10 in., without the tire. Depth of rims, 1¾ in. Size of spokes, 1¾ in. Number of spokes, 12 and 14. Stagger of spokes, ¾ in. Hubs, front, 6¼ in., and rear, 6½ in. diameter. Front bands for front hubs, 4¾ in., and back, 5½ in., inside diameter. Front bands for rear hubs, 4½ in., and back, 5¼ in. Length of front bands, 2 in. Length of hubs, 8 in. Tire, 1½ × ¾ in.

The front springs are elliptic, 40 in. long, from out to out, with 11½ in. opening over all. Width of steel, 1¾ in. Number of plates, five, namely: the first three No. 2, and the last two No. 3 steel. Holes apart on the top half, 4 in. Size of holes, ¾ in.

The rear springs are platform. The side-springs are 42 in. long, from out to out, with 9¾ in. opening over all. Width of steel, 1¾ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. The cross-spring is 39 in. long, from center to center, with 5 in. opening over all. Width of steel, 1¾ in. Number of plates, four, namely: the first three No. 2, and the last No. 3 steel. Axles, 1¾ in., Collinge patent. Track: front, 4 ft. 6 in., and rear, 4 ft. 10 in., from out to out.

Finish.—Painting of body: quarters, back, and door panels, dark blue; and moldings and boot panels, black. The moldings are striped with a fine line of Naples yellow. Running-gear, blue, a shade lighter than the body, striped with three stout lines of Naples yellow.

Trimming, blue goatskin for the lower backs and cushion tops, and cloth for the lower and upper quarters, upper backs and head-lining. The seat-backs, cushion tops and lower quarters are laid off in large diamonds. The falls are edged with broad-lace, and tufted in the center. Broad-lace is also used for the doors, and tufted in the center. Blue cloth is used for the driver's-seat, trimmed plain. Carpet, blue, with yellow figures. Mountings, brass.

TILBURY, WITH OGEE CORNER-PILLAR.

(See Fashion Plate No. 67.)

THE Tilbury, with some modern improvements, appears to be increasing in favor among city customers, and is now found in all leading city repositories. Several variations from previous Fashion Plates belonging to this class will be observed in our present design. For the back we have adopted the ogee pillar, now frequently applied to other vehicles, especially on Ladies' Phaetons of the finer grade. To give the lines of the body more prominence, the middle and corner-pillars should project considerably at the bottom of the seat-molding over the sides of the body, and then be worked off gradually to ½ in. at the bottom of the body, connecting at that point with a molding attached to the bottom sill.

A simple mode of construction would be to make the lower part of this body first, placing uprights where the middle and corner-pillars are located. After the side panels have been glued on to the framework, the corner and middle pillars can then be fitted to the sides, and secured by several screws inserted from the inside of the body. The scroll at the rear of the body is fitted to the corner-pillar, and glued to the sides of the body. The bottom molding of the body is fitted between the two pillars, and glued to the sides. The back, and side panels of the seat, are put into a groove all around. The toe-board bracket is framed into the bottom sill, and strengthened by a plate on the inside. Bent wood is used for the corner-pillars.

The steps and front body-loops are made of one piece. The shafts revolve at the front, a socket being fastened under the shafts, and having a hole drilled through it, to receive a bolt fastened under the body. At the rear, the shafts slide in an iron box, having three or four holes drilled through it, for the adjustment of the height of each shaft.

Dimensions.—Width of body on top, 34 in.; ditto bottom, 31½ in.; ditto top of seat in front, 45½ in.; and ditto back, 42 in. Turn-under, 6 in. Height of wheels, 46 in., without the tire. Depth of rims, 1½ in. Size of spokes, 1½ in. Number of spokes, 14. Stagger of spokes, ⅜ in. Hubs, 5¼ in. diameter. Front bands, 3½ in.; and back, 4 in., inside diameter. Length of front bands, 1¾ in. Length of hubs, 7 in., Tire, 1⅞ × ⅜ in., round edge steel.

The springs are 43 in. long, from out to out, with 4 in. set over all. Width of steel, 1½ in. Number of plates, five, namely: the first two No. 2, the next No. 3, and the last two No. 4 steel. Axle, 1⅞ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the upper or seat panels, dark green. Moldings, and side and back panels of body, black. Gear, green, with one heavy stripe of black, and two fine lines of light green. Trimming, green cloth. Plain trimming is used for the back, with the exception of the top, where a roll is introduced. The fall is made with five plaits, the center one being large enough to admit of the introduction of a pocket provided with a lid. The carpet should match the color of the trimming. Mountings, silver.

FOUR-PASSENGER STANDING-TOP WAGON.

(See Fashion Plate No. 68.)

A VEHICLE of this description can be utilized for a variety of purposes, namely: as a family carriage for driving in the country during the summer season; as a Depot Wagon for carrying passengers and baggage to and from railroad stations; and as a Market Wagon for the use of parties living in the suburbs of cities.

If desired, the rear portion of the body may be provided with two children's-seats running parallel with the sides of the body; but when these are used, the rear seat is removed. Such seats may be of very simple construction, consisting merely of a seat-board about ¾ in. thick, with an iron crossing it at the bottomside, about 4 in. from each end, terminating in a hook; and two eyes are attached to the top rail of the body for the reception of these hooks. The fronts of these children's-seats are supported by two wooden legs hinged to the seats. By this arrangement, four children can be comfortably accommodated.

The back of the body is slightly concaved, while the sides are made straight lengthwise, and flared out from bottom to top. The rockers are about 1¼ in. thick, and 3¼ in. high. The bottomside is glued and screwed to the rockers. At the front of the body the lower pillar follows the shape of the body. The upper one is made of iron, forming a half T at the upper side-rail of the body, and a short angle at the rocker. A bolt passes through this angle.

The rear corner-pillars are made of wood, and plated on the inside. The standing pillars at the door are also plated on the inside, the plate forming an angle at the rocker for the reception of one bolt. Corner-plates are fastened on the top, at the front and rear ends.

The seat-risers are made of wood, but these can be replaced by two iron stays at each end, swept in the same manner as indicated by the wooden risers. Round corners are preferable for the seats, and especially for the front seat. The sharp corner of the top of a square-cornered seat is liable to injure dresses, as the space between the front and rear seats is not large.

The sticks, filling the space between the panel and the upper body-rail, are V-shaped, and are made of hickory. The back is finished in the same manner as the sides. Two curtains are used between the pillars. The running-gear has a single perch, and is made as light as possible.

Dimensions.—Width of body on top, 37 in.; ditto bottom, 35 in.; ditto seats on top, 37 in.; and ditto bottom, 34 in. Height of wheels: front, 3 ft. 5 in.; and rear, 3 ft. 11 in., without the tire. Depth of rims, 1¼ in. Size of spokes, 1⅝ in. Number of spokes, 14. Stagger of spokes, ⅝ in. Hubs, 4¼ in. diameter. Front bands, 2⅝ in., and back, 3¼ in., inside diameter. Length of front bands, 1¾ in. Length of hubs, 6½ in. Tire, 1 × ⅜ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with 9½ in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, 3½ in. Size of holes, ⅝ in.

The hind spring is elliptic, 38 in. long, from out to out, with 9½ in. opening over all. Width of steel, 1½ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 3½ in. Size of holes, ⅝ in. Axles, 1⅞ in., steel. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body and seats, black. Running-gear, carmine, with two light stripes of black. Trimming, green morocco or cloth. The biscuit pattern is used for the cushion tops, and plain trimming for the lazy-backs. One raiser is applied around the edge of the falls. Carpet, green, with light green figures. Mountings, silver.

COUPÉ-ROCKAWAY, WITH SHIFTING CIRCULAR FRONT.

(See Fashion Plate No. 69, and also Working Draft of Body and description of the same, pages 624 and 625.)

WHEN business is booming, anybody can sell any kind of a vehicle; but when times are dull, then the wide-awake builder knows he must do his prettiest to produce something to specially attract the attention of prospective customers. It is then that new lines and novelties of all kinds must be introduced; and even if some of these prove premature, and do not hold their own permanently, the lessons thus taught may be turned to good account by the observing manufacturer.

Four-passenger Coupé-Rockaways with octagon fronts have been built for several years past with fair success. Such octagon fronts are in most instances made stationary, but we know of several firms who have made both stationary and movable fronts, and they report that the latter are preferred by many customers. Lately, Coupé-Rockaways with circular fronts have made their appearance. Whether these will prove a permanent success, we are unable to say. The outside appearance is certainly in their favor, while the octagon front affords better seat-room inside, and also a more comfortable back for the driver. The back, in case of the Circular-front Rockaway, is its most objectionable feature. We think, however, that this defect might be overcome by the exercise of a little ingenuity in devising some practicable mode of attaching a movable lazy-back.

The circular fronts on Rockaways which have come to our notice have been stationary. The design represented in our present Fashion Plate is intended for a movable front with one glass, which is made to drop, though two glasses can be used if preferred, also made to drop. On a stationary circular front, two lights are invariably used, and are then made to slide. In the case of a Circular-front Rockaway, some difficulty might be experienced in placing the chair backs properly, and we would therefore suggest the advisability of fastening a piece of whitewood on top of the front seat, to be fitted against the front on one side and straight on the front face, and with the top face upholstered and laid off in the same figures as the cushion. When the front is removed, the chair backs are then placed against this piece of whitewood.

Dimensions.—For the different widths of the body, the reader is referred to the working draft presented on page 624 in this number. Height of wheels: front, 3 ft., and rear, 4 ft., without the tire. Depth of rims, 1⅝ in. Size of spokes, 1¼ in. Number of spokes, 12 and 14. Stagger of spokes, ⅝ in. Hubs, 4½ in. diameter. Front bands, 2⅝ in., and back, 3½ in., inside diameter. Length of front bands, 2 in. Length of hubs, 7 in. The perch is made of bent wood. Tire, 1⅞ × ¼ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with 9½ in. opening over all. Width of steel, 1¾ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on top and bottom half, 3½ in. Size of holes, ⅝ in. The rear springs are elliptic, 40 in. long, from out to out, with 10½ in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 3½ in. Size of holes, ⅝ in. Axles, 1⅞ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower back quarters, doors and front seat panels, dark green; and moldings, upper quarters and back panel, black. The moldings are striped with a fine line of light green. Running-gear, green, a shade lighter than the body, striped with two heavy round lines of black. Trimming, green morocco for the cushion tops and backs, and green cloth for the rest. For the rear back we would advise the use of a row of squares on top, followed by a row of piping, and finished off with two rows of squares at the bottom. The fall on the rear seat is tufted in the center, and edged with broad-lace. The doors are edged with broad-lace, and tufted in the center. The upper rear back is laid off in squares of a smaller size than those used on the lower back. The front back and cushion tops are also laid off in squares. The front fall is made of morocco, with a one-inch raiser around the edge, made of the same material. Carpet, green, with black figures. Mountings, silver.

EIGHT-PASSENGER OGEE WAGONET.

(See Fashion Plate No. 70.)

THE popularity of the Wagonet has steadily increased for several years past, and it is now to be found in all well-stocked repositories.

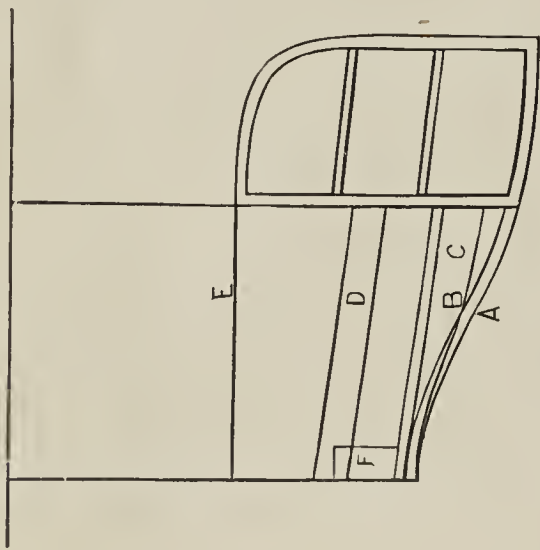
The accompanying design is modernized in several respects, the changes on the rear portion of the body and on the front seat deserving special note. The body offers seating capacity for eight persons. A top can be applied, if desired, and should be made to shift. This top may be provided with curtains, or be finished similar to a canopy top.

The sides of this body can be constructed in several different ways. First, the front and rear moldings can be made even with the outside of the upper section of the body. This, however, would make the body too wide on top if the panel on top should not set in more than the thickness of the molding; and, to obviate this, the panel may be set in 3 to 4 in. from the outside, which would do on a stanhope-pillar, but would not look well with a molding having a width of only $\frac{7}{8}$ in. A better method to avoid this trouble is to have the seat project over the molding about $2\frac{1}{2}$ in., and make the molding $1\frac{1}{2}$ in. deep on top, and $\frac{3}{8}$ in. at the bottom. In every instance the moldings are swept in a convex-concave shape.

The front rockers set in from the outside $2\frac{1}{2}$ in., and are $1\frac{3}{8}$ in. thick. This will make the rear bottom sill, including panel, $4\frac{1}{8}$ in., while $3\frac{1}{2}$ in., including the panel, will be all-sufficient. A $\frac{5}{8}$ in. block is therefore glued to the bottom sill, to fill the space from the rear sill to the front rocker, and is shaped off to nothing toward the sill.

Three uprights and one top-rail constitute the framework for one side of the body. The front upright follows the shape of the molding in front, and is made heavy enough to have the molding worked on. The side panel is then put into the groove, but is glued over the bottom sill. The rear panel sets in $\frac{1}{4}$ in. from the rear end of the side panel, to prevent the joint formed by the seat and body from showing. The projecting end of the side panel is then rounded off, and a half-round molding is nailed across the bottom of the body, being made the thickness of the projection of the side panels. The front seat projects over the body in front $2\frac{1}{2}$ in., and is contracted 1 in. toward the rear. The sides are left open, but the rear is closed, and bent wood should be used, if possible, for the rear corner-pillars of the seat.

For better illustration of the points we have noted, we introduce below a half back view of the rear portion of the body.



In this sectional cut, A represents the outline of the molding when even with the outside of the seat; B is the outside of the molding when the seat projects over; C, the outside of the side panel for the rear portion of the body; D, the front rocker; E, the door line; and F, the end view of the bottom sill.

Dimensions.—Width of body in front, under front seat, $34\frac{3}{4}$ in.; ditto bottom, $31\frac{1}{2}$ in.; ditto top of seat in front, 44 in.; ditto bottom, 39 in.; ditto rear of seat on top, 41 in.; ditto bottom, 37 in.; ditto top of body at the rear end of the body, from out to out of panel, 40 in.; ditto bottom, $36\frac{1}{2}$ in.; ditto top of seat, 50 in.; and ditto bottom, 48 in., from out to out. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Height of wheels, 2 ft. 11 in. front, and 3 ft. 10 in. rear, without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Front hubs, $5\frac{3}{4}$ in., and rear, 6 in. diameter. Front bands for the front hubs, 4 in., and back, $4\frac{3}{4}$ in. inside diameter. Front bands for the rear hubs, $4\frac{1}{4}$ in., and back, 5 in., inside diameter. Length of front bands, 2 in. Length of hubs, 8 in. Tire, $1\frac{3}{8} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 38 in., from out to out, with 9 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{5}{16}$ in.

The rear springs are half-elliptic, 46 in. long, from out to out, with 4 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, six, namely: the first three No. 2, and the rest No. 3 steel.

Axles, $1\frac{1}{4}$ in. front, and $1\frac{3}{8}$ in. rear, Collinge patent. Track: front, 4 ft. 2 in., and rear, 4 ft. 8 in., from out to out.

Finish.—Painting of the rear section of the body between the moldings, dark green; and the rest of the body, black. Running-gear, dark green, with two narrow stripes of carmine. Trimming, green morocco. The back for the front seat, and the cushion tops, are laid off in medium-size squares. The backs for the rear seats are plain. A raiser is intended to go around the edge of the falls, and the center may be tufted. The carpet should match the color of the trimmings, and be red-figured. Mountings, silver.

MEDIUM-SIZE BROUGHAM: FRENCH STYLE.

(See Fashion Plate No. 71.)

THE Brougham (and its near relative, the Coupé) is to-day almost the only example of a vehicle which retains its popularity among owners of private vehicles, while it is at the same time employed in great numbers for livery purposes. The Clarence Coach, Landau, and many other vehicles were, when first introduced, used exclusively by private parties, but they gradually worked their way into livery service, and as soon as their general adoption by the livery trade was observable, they began to decline in favor as private vehicles. By this process, the Clarence Coach as a family carriage has been practically run out of this market. The Landau has gone through a similar struggle, and with better success; but even that has lost its aristocratic exclusiveness, and its popularity seems still to be decreasing with the best class of private customers, if we may judge by the decreased sales, as compared with the rapidly growing demand for Broughams. A vast number of public Broughams now ply the streets of our leading cities, especially New-York; but notwithstanding this, its popularity with private customers is steadily increasing.

The trained eye of the carriage-builder and draftsman will readily detect the Brougham built for private use, as distinguished from the one built for livery purposes. Even where the general outlines are similar, marked differences generally appear in the general finish,—for instance, in the material and make-up of the trimming, the painting, and the greater or less elaborateness of the interior decoration.

The outlines of the design shown in our present Fashion Plate do not differ materially from others previously published; but it represents the best modern taste in its details, the most noteworthy of which are as follows: the rear quarter is made a trifle higher than formerly; the arm-rail has not the short curve toward the rear corner-pillar; and the coupé-pillar has a more gradual sweep than has been customary. The lower part of the rear standing-pillar is swept very little,—not more than $\frac{1}{8}$ in.; and the bottom between the door-pillars has more curve than formerly. Bent corner-pillars are used for the lower quarter. The upper section of the pillar is sawed from the plank as usual, and spliced to the lower pillar. Attempts have been made to dispense with splicing this pillar, and to use bent wood the full height; but we are informed that the results thus far attained by this method have not been entirely satisfactory, owing to the springing of the upper section of the pillar. On the gearing two wooden beds are used. The back bar on the top gear may also be made either of wood or iron.

Dimensions.—Width of body at the hinge-pillar, 50 in.; ditto at the coupé-pillar, 45 in.; ditto at the rear panel, 42 in.; and ditto at dash, 30 in. Turn-under, 3 in. Rocker-plates, $2\frac{3}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws. Height of wheels: front, 2 ft. 11 in., and rear, 3 ft. 6 in., without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{9}{16}$ in. Number of spokes, 10 and 12. The spokes have no stagger. Front hubs, 6 in., and rear, $6\frac{1}{4}$ in. diameter. Front bands for the front hubs, $4\frac{1}{8}$ in., and back, $4\frac{7}{8}$ in., inside diameter. Front bands for rear hubs, $4\frac{3}{8}$ in., and back, $5\frac{1}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round-edge steel.

The front springs are elliptic, 38 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in.

The rear springs are platform. The side-springs are 40 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The cross-spring is $37\frac{1}{2}$ in. long, from center to center, with 5 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the last three No. 3 steel. Axles, $1\frac{3}{16}$ in. front, and $1\frac{1}{4}$ in. rear, Collinge patent. Track, 3 ft. 11 in. front, and 4 ft. 8 in. rear, from out to out.

Finish.—Painting of the lower quarters, back and door panels, dark green; and moldings, upper quarters, back and boot-panels, black. The moldings are striped with a fine line of light green. Running-gear, green, a shade lighter than the body, with a broad stripe of black and two medium lines of light green.

Trimming.—Green goatskin is used for the lower back and cushion tops; and satin, of the same color, for the upper and lower quarters, upper back, front, doors and head-lining. The upholstering on the back is in squares and pipes. The cushion top is laid off in large squares. The upper and lower quarters and head-linings are quilted. The figures are of the square pattern, and small tufts are symmetrically arranged. Broad-lace is used around the quilted part to heighten the effect. The seat-fall is quilted and bound with broad-lace. The front is trimmed to harmonize with the rest. It is quilted, but has no broad-lace on the garnishing-rail. The doors are edged with broad-lace, and quilted in the center. The driver's-seat, as usual, is trimmed plain, green cloth

being used. The glass-frames are covered with fine cloth, in color to match the trimming. The interior should be provided with all articles now indispensable to a fashionable carriage, such as bell, speaking-tube, card-case, etc. Carpet, rich dark green, with light green figures. Mountings, silver.

EIGHT-GLASS COACH, WITH FULL SWEEP.

(See Fashion Plate No. 72.)

WHETHER or not this design will meet with general favor, we are unable to say. The so-called "round bottom line" has not yet been re-established on a substantial footing in this country, although in England, as we are informed, it is gradually making a place for itself. The main objection to it here, apparently, is the claim that the English quarter gives more comfortable seat-room, which is a fact not to be disputed; but the scantiness of seat-room on a round-bottom coach can be obviated to a considerable extent by giving the quarters a full sweep such as we have introduced in our Fashion Plate. The quarters are deep and long, and give it a rich and substantial appearance.

A paneled boot is dispensed with in our design, and a skeleton boot substituted, but this is at the option of the builder, who may, in some instances, consider the paneled boot more appropriate. The door, as will be seen, is cut through to the bottom of the rocker, and the berth for the floor-glass frames is brought as close as possible to the bottom edge of the rocker, thus reducing the height of the door-panel as much as possible. The bottomsides are made of bent wood, and the upper parts of the front and rear corner-pillars are spliced to them.

The good appearance of such a body depends in a great measure upon the skillful working of the side swell, and in most cases the cheat line will have to be resorted to, especially if the quarters are made less full. For the upper quarters we would advise the use of glass-frames similar to those used on doors, and covered with cloth of the same color as the interior trimming.

The iron-work on the front of the body requires great skill and taste on the part of the blacksmith; and, to facilitate his work, a special draft is necessary. Close futchels are used on the gear, and three wooden beds. From the puncheon in front, a horn-stay is made to support the crane or neck-irons. The toe-board irons are welded solid to the neck-irons. Large lamps are to be commended as most suitable for jobs of this character.

Dimensions.—Width of body at lock and hinge-pillar, 53 in.; ditto at front and rear, 44 in.; and ditto at the toe-board, 34 in. Turn-under, 4 in. Rocker-plates, $3\frac{1}{4} \times \frac{1}{2}$ in., fastened with 2 in. No. 20 screws. Height of front wheels, 3 ft., and rear, 3 ft. 9 in., without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{7}{8}$ in. Number of spokes, 12 and 14. The spokes have no stagger. Front hubs, $6\frac{3}{8}$ in., and rear, $5\frac{5}{8}$ in. diameter. Front bands for front hubs, $4\frac{3}{8}$ in., and back, $5\frac{1}{4}$ in., inside diameter. Front bands for the rear hubs, $4\frac{5}{8}$ in., and back, $5\frac{1}{2}$ in., inside diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, 8 in. Tire, $1\frac{1}{2} \times \frac{7}{8}$ in., round-edge steel.

The front springs are elliptic, 40 in. long, from out to out, with $11\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first two No. 2, and the rest No. 3 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{3}{8}$ in.

The rear springs are platform, 42 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{3}{8}$ in. The cross-spring is 42 in., from center to center, with 5 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first three No. 2, and the last No. 3 steel. Axles, $1\frac{7}{16}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower quarters, doors and back panels, very dark blue; and moldings, upper quarters and back panels, black. Running-gear, dark blue, with two narrow stripes of yellow. Trimming, blue goatskin for the lower backs and cushion tops; and blue satin for the lower and upper quarters, upper backs, doors and head-lining. The head-lining is quilted. For the backs, use one row of squares on top, next a row of piping, and then two rows of squares on the bottom. No rolls are used. A roll is fastened against the seat-rail, and the lining boards are covered with satin, edged with broad-lace, and tufted in the middle. The doors are also edged with broad-lace, and tufted in the middle. A card-case, and a case accommodating a mirror, are fastened on the inside of the door. Carpet, plain blue. Mountings, brass.

PLATFORM-SPRING FURNITURE WAGON.

(See Fashion Plate No. 73.)

A RECENT call for prints and sketches of new patterns of Furniture Wagons has called forth the accompanying design.

It may, at first sight, appear to those building such work that the construction of this body demands an excessive amount of work, but this is not the case. There is a trifle more work on this seat than on that of the Furniture Wagon published by us in January, 1884. The running-gear also requires somewhat more work and outlay in material, as platform springs are here used, while our January design had only one elliptic spring in front, and two half-springs in the rear. But let us now look into the further details.

Each side of the body consists of one piece of board, $\frac{7}{8}$ in. thick, and the moldings are nailed on. The sticks on the upper part are turned and sawed in half, and also fastened to the sides by glue and finishing nails or brads. The side boards are screwed to the sills, which are about $1\frac{1}{2} \times 3\frac{1}{4}$ in., and made of white oak. Five cross-bars are mortised into the bottom sills. The front board is set in $\frac{5}{16}$ in. from the front end of the sides. The front is molded off as indicated on the drawing, the molding coming level with the outside. The toe-board is fastened to the body by irons extending the full length of the board, and running up toward the top of the body, forming an angle at the intersection of the toe-board and body. Two iron stays extend from the bottom of the body to the bottom of the toe-board, adding further strength to the same.

The driving-seat rests on four iron stays or raisers, formed as shown in the drawing. Wooden raisers may be substituted in place of the iron ones, if desired. The making of this driving-seat is the most trying part of the whole work, but the difficulties may be overcome by a little diligence and energy on the part of the body-maker. When dressing the corner posts, saw off the ends by the bevel produced by the side and rear bevel of the seat. Place the pattern on the inside, and, where the marks from the patten intersect with the ends, square a mark over on top and bottom. The pattern is then laid on the other side, to correspond with the marks crossed over from the inside, and marked off on the outside; and the corner posts are then dressed by those two marks. For the top and front rails of the sides, bent wood should be used, which is also recommended for the corner posts, if obtainable. The rear side of the tail-gate is finished the same as the sides, with the exception of the lower section, where the moldings follow the ends of the tail-gate.

The wood parts on the gearing should be as light as possible, and made of the best hickory. A shifting top is desirable for all such wagons, for better protection of furniture in case of inclement weather.

Dimensions.—Width of body, 47 in., from outside to outside. Height of wheels: front, 3 ft., and rear, 4 ft., without the tire. Depth of rims, 2 in. Size of spokes, $1\frac{7}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $6\frac{3}{4}$ in. diameter. Front bands, 5 in., and back, $5\frac{1}{2}$ in., inside diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, $8\frac{1}{2}$ in. Tire, $1\frac{1}{2} \times \frac{1}{2}$ in.

The front springs are platform. The side-springs are 43 in. long, from out to out, with $6\frac{1}{2}$ in. set over all. Width of steel, 2 in. Number of plates, six, namely: the first two No. 2, the next three No. 3, and the last No. 4 steel. The cross-spring is 43 in. long, from center to center, with $6\frac{1}{2}$ in. set over all. Width of steel, 2 in. Number of plates, six, namely: the first three No. 2, and the last three No. 3 steel.

The rear springs are platform. The side-springs are 47 in. long, from out to out, with 9 in. set over all. Width of steel, 2 in. Number of plates, six, namely: the first four No. 2, and the last two No. 3 steel. The cross-spring is 43 in. long, from center to center, with 8 in. set over all. Width of steel, 2 in. Number of plates, six, namely: the first four No. 2, and the last two No. 3 steel. Axles, $1\frac{1}{2}$ in. Track, 4 ft. 8 in., from out to out.

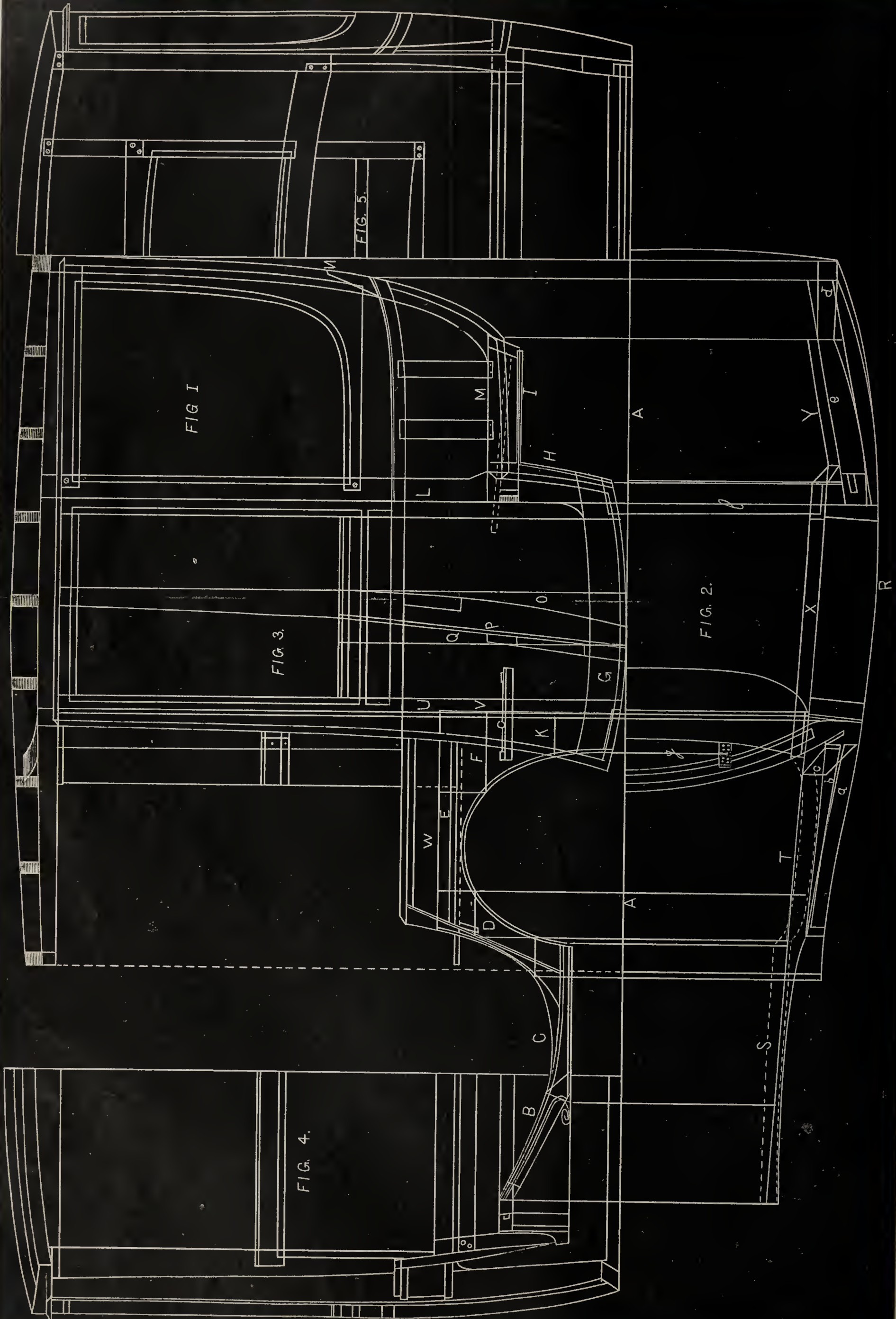
Finish.—Painting of the lower panel of the body, dark green, and the upper panel, carmine; with the sticks and moldings black. The lower panel is striped carmine and black. Running-gear, carmine, with a broad stripe and two stout lines of black. Trimming for the cushion, black enameled leather. Mountings, silver.

WINDLASS TRUCK FOR DELIVERING CARRIAGES.

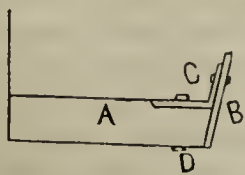
(See Fashion Plate No. 74.)

THE truck from which this drawing was made was built by Mr. Wm. D. Gardner, carriage-builder, of No. 214 South Fifth-street, Philadelphia, for his own use; and the sketches and measurements employed by us were kindly furnished by Mr. R. H. Lee, foreman of Mr. Gardner's smith-shop.

The construction of this truck is very simple, and it is light, and can be built without great expense in material or labor. The side pieces of the framework constituting the body are made of ash, 6 in. wide by $1\frac{1}{2}$ in. thick, and with 6 in. bend. An iron plate, $3 \times \frac{1}{4}$ in., is fastened edgewise to the outside of the side pieces or bottom sills, bent the same shape as the sills, and fastened to the same by bolts, while, at the intervening spaces, screws are used. To strengthen the projecting part of the plate, corner-plates are used, made as shown in the following small cut, wherein A gives the end view of the sill; B, the outside plate; C,



the corner-plate; and D, the bolt connecting the corner-plate to the body. Each of these corner-plates is fastened to the side plates by rivets.



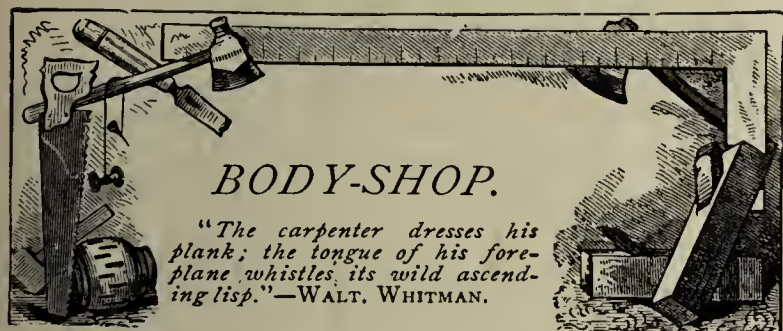
The seat supports are made of ash, 5 in. wide at the bottom, tapered to 2 in. at the top, and $1\frac{1}{2}$ in. thick. These supports are framed into the cross-bars, and strengthened by corner-plates. The outer edge of the bottom sills is beveled $\frac{3}{8}$ in. Each of the sills has three strips of tire steel on the top face, $1\frac{1}{4} \times \frac{5}{16}$ in.

Five cross-bars are used, $5 \times 1\frac{1}{2}$ in. Two of these are at the front, one at each end of the rear spring, and one at the extreme end. The seat is made with solid sides and back, and is fitted to the seat-frame in the same manner as a buggy seat. A box is fastened to the inside edge of the seat-frame pieces, for the storage of blankets, wrenches, etc. A windlass is fastened to the seat supports, to better facilitate the loading of carriages. This windlass consists of two cog-wheels. The lower one is fastened to a shaft made of 1 in. round iron, reaching across the seat supports, and this is $3\frac{1}{2}$ in. in diameter. The upper cog-wheel is 12 in. in diameter, and has a roller 3 in. in diameter. The leverage power obtained by this arrangement of the windlass is sufficient to draw at least $1\frac{1}{2}$ ton, which can readily be accomplished by one man. The gear is made of hickory, all bars being straight crosswise, and they should be made as light as possible.

Dimensions.—Width of body frame on top, 5 ft. $3\frac{1}{2}$ in., from out to out; ditto bottom, 5 ft. $3\frac{1}{8}$ in. Width of seat-frame, 37 in. over all; ditto on top, 40 in. Wheels, Warner patent. Height of wheels: front, 2 ft. 6 in.; and rear, 3 ft. Tire, $1\frac{5}{8} \times \frac{1}{2}$ in.

The front springs are platform, 43 in. long, from out to out, with 5 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, all No. 2 steel. The cross-spring is $41\frac{1}{2}$ in. long, from center to center, with 6 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, all No. 2 steel. For the rear, two side-springs are used only, 40 in. long, from out to out, with 5 in. set over all. Number of plates, six, all No. 2 steel. Axles, $1\frac{3}{8}$ in. Track, 5 ft. 2 in.

Finish.—Painting of body, dark green; and running-gear, yellow, with a broad stripe and two stout lines of black.



WORKING DRAFT OF COUPÉ-ROCKAWAY, WITH SHIFTING CIRCULAR FRONT.

See Drawings on opposite page; also Fashion Plate No. 69, and Mechanical Description of latter on page 621.)

THE body of a Coupé-Rockaway is not considered by the skilled and experienced body-maker an unusually difficult piece of work. While we do not dispute the opinion, it is nevertheless true that beginners, and even the more advanced body-makers, often find it no easy task to properly construct the body of a Coupé-Rockaway, if we may judge by results. We have seen, in more than one instance, a Rockaway body wherein there was timber enough used to make almost two such bodies. The rule for inclining and contracting the different pieces was evidently unknown to the body-maker. To overcome the extraordinary size of the timber, the turn-under and side-swell were reduced to a minimum, leaving the body almost straight,—or, to cite the phrase of an old body-maker and a good one: “the side-swell had to be worked on with the foreplane.”

In examining the working draft of the Coupé-Rockaway introduced in this number, it will be seen that the body, when finished, will have considerable side-swell. The turn-under is $3\frac{1}{4}$ in., and should not be more than $3\frac{1}{2}$ in., for giving the body more turn-under would necessitate a greater projection of the lower door-hinge (if common hinges are used) from the outside of the body. This could, of course, be partly overcome by increasing the projection of the top hinge as compared with the bottom hinge,—that is, by allowing the top hinge to project further from the outside of the pillar than is necessary to have the door plumb when opened, and placing the bottom hinge further inward toward

the body; but this would cause the door when opened to recede from the vertical line, and, although this is not a serious fault, it is objected to by many manufacturers, and, we think, with sufficient reason.

PRINCIPAL DIMENSIONS OF BODY.

The principal dimensions of this body are as follows: Width of body at the rear standing-pillar, 49 in.; ditto at coupé-pillar, $46\frac{1}{2}$ in.; ditto rear, 3 ft. 5 in.; ditto front, 3 ft. 4 in.; and ditto at dash, 2 ft. 7 in. Turn-under, $3\frac{1}{4}$ in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. Nos. 14, 16 and 18 screws.

SIZES OF THE PRINCIPAL PIECES.

The rockers, with the exception of rocker I, are $1\frac{1}{2}$ in. thick. Rocker I is $1\frac{3}{8}$ in. The lower corner-pillars and bottomsides are made of one bent piece of 3 in. thickness. The upper section of the corner-pillars are $2\frac{1}{2}$ in. Three-inch ash will be sufficient for the coupé-pillars, by gluing $\frac{5}{8}$ in. on the inside at the bottom end. The rear standing-pillars are made of three-inch ash. The front door or lock-pillars are of $1\frac{3}{4}$ in., and the rear or hinge-pillars of $1\frac{5}{8}$ in. ash. Use $1\frac{3}{4}$ in. ash for the arm-rails, and $2\frac{1}{4}$ in. ash for the top-rails. The rear cross-bar is of $1\frac{1}{4}$ in. ash. The remaining cross-bars are of 1 in. ash. The seat-rail for the rear seat is $1\frac{3}{4} \times 1\frac{1}{4}$ in. ash. For the middle rail of the back, $1\frac{3}{4}$ in. ash will be necessary, the back having 1 in. swell. For the rear curve, $1\frac{1}{2}$ in. ash will be sufficient, and $1\frac{1}{4}$ in. for the extreme front curve. The intervening curves are $1 \times \frac{5}{8}$ in. Use $1\frac{1}{4}$ in. ash for the center or fence-rail of the door, and $\frac{7}{8}$ in. ash for the top-rails of the door. The frame-pieces for the rear quarter lights are made of whitewood. The horizontal pieces require $1\frac{3}{4}$ in., and the uprights $1\frac{1}{4}$ in. whitewood. The uprights and the top and bottom bars of the front are made of whitewood, and the middle rail of ash.

DESCRIPTION OF THE DRAWINGS.

Fig. 1 represents the side elevation; Fig. 2, the cant; Fig. 3, the standing-pillar, showing the turn-under and inclination of the body; Fig. 4, the half front view; and Fig. 5, the half back view.

Each rocker is composed of eight pieces, namely: B, the toe-board rocker; C, the front bottom rocker; D, E and F, the rockers composing the wheel-house; G, the door rocker; and H, the rocker connecting the rear rocker I with the door rocker G.

There are four different contractions used, but all are inclined after the line P, Fig. 3.

When all the pieces entering into the construction of the body have been dressed and the shoulders marked off, the rockers are then framed first.

Rockers B, C and D are contracted after line S, Fig. 2, and inclined the same as line P, Fig. 3. The mortises and tenons on these rockers can be gauged off. The distance between the toe-board rocker B, although following the contracted line S, is of one width. This is produced by the inclination, which offsets the contraction. The difference between lines P and Q in this instance is equal to the distance on lines S from the connection of rocker B with rocker C up to the extreme front end. There is a slight difference in the contraction of the rockers E and F, from B, C and D, as indicated by line T, Fig. 2. When framing the rockers D and E together, the tenon will be on E. This will expose less joint than if the tenon should be on D. The tenon is gauged off, which is also the case with the mortise on D, at the rear face. The mortise in front of rocker D, however, is pricked off. The exact amount is ascertained by squaring the top face of the rocker D, at the front end, to the ground plan, and also the point where the bottom face of rocker E intersects with the front of rocker D. The difference between lines S and T at these two points is the amount the mortise of rocker D is to be displaced, which is accomplished by using the same gauge employed at the rear face of the rocker D for the front face. The distance between lines S and T at the proper places is then transferred to the front of rocker D, placing one point of the compass on the gauge mark, and the other toward the inside of rocker D. These two points will give the proper position of the mortise in front.

Rockers E and F can be gauged off. Both these rockers are contracted by line T. At the connection of F and G the same method is applied as on D and E. We would advise placing the tenon on F, for obvious reasons. The joint is not only entirely covered by the coupé-pillar, but the connection of the two rockers is also strengthened considerably, which would not be the case if the joint should be placed on the rocker G.

In framing F to G, the rocker F should not follow the line U, representing the rear face of rocker F, but it should be framed by line V. The change in the position of rocker F is due to the inclination and contraction of rockers F and G. The amount rocker F will be displaced is not great, but it is always the best to have things right, and we will therefore explain below, in detail, how to arrive at the proper position which rocker F should occupy.

Proceed as follows: Place the square on the edge of the draft-board, and strike a vertical line. Then set the bevel by lines X and f, Fig. 2,

and strike another line intersecting with the vertical line at the bottom edge of draft-board. Then take the distance between lines P and Q, Fig. 3, at the height of the top face of rocker F, and place the amount on those two lines, measuring from the edge of the draft-board. The distance between the two lines at this point is the amount the position of the rocker changes, which, on this body, is about $\frac{1}{8}$ in. Line V will also be the line to mark the shoulders by. The same rule will have to be observed in framing rocker H to G.

The changing of the position on rocker I is more prominent than on F and H. The line below the bottom line of rocker I indicates the proper position to frame the rocker.

Bottomside M is made of bent timber. The upper pillar, N, is spliced to M at the place indicated on the drawing. The back has 1 in. swell from the top curve to the middle rail, and from there to the bottom cross-bar the swell diminishes gradually to a straight line.

The front seat panel is framed into the coupé-pillar, receding from the outside of the coupé-pillar $\frac{3}{8}$ in.; and it is glued to the rocker.

On Fig. 2, *a* is the inside line of the top face of the front seat W; *b*, the bottom line; and *c*, the outside face of the rocker E. The space between the lines *b* and *c* is filled in with a piece of ash.

Lines S, T, X and Y represent the inside line of the body at the ground line A.

To obtain the correct lengths of the different cross-bars, all that will be necessary is to square the different sides of the cross-bars or seat-rails to the cant. The height of each bar, measuring from the ground line A, is then transferred to the standing pillar, Fig. 3. The distance between lines P and Q at that point is then placed on lines S, T, X and Y, toward line R, Fig. 2. From ground line A to this point will be half the length of the bars.

For a better understanding, we have designated by dotted lines, wherever possible, the position of the rocker caused by the inclination of line P. The bottomside M is dressed by contracted line *e*, and not inclined, the rocker I, from the bottom edge of bottomside M to the top face, being dressed square by the top face of rocker I. This is the easiest and quickest method. To have the bottomside M inclined and contracted would involve more labor. The dressing of the piece is more difficult, and on a body of considerable contraction, as on this draft, will necessitate making two patterns, one to be used to lay off the side elevation, and the other to work by; but, as the final result of the latter method is the same, the first-mentioned method will be preferable.

The bottomside M is framed into the standing-pillar L, having a short tenon about $1\frac{1}{2}$ in. long. The moldings of the standing-pillar L and bottomside M form a miter on the bottom face. [See draft.] The arm-rails are let in from the outside of the body. The lower quarter panel is glued over the arm-rail even with the top edge. When laying off the arm-rails and bottomsides, allowance must be made for the difference in length between the contracted and horizontal lines.

Several methods are in use for dressing the front door and coupé-pillar. While the method of dressing the front face of the door-pillar by the shut bevel from the side sweep line R to line X, as on this drawing, would be the easiest way, it is not always to be commended, especially on bodies with great contraction, where it would cause a contraction of the door of $\frac{1}{2}$ in. or more at the bottom, which will be increased when common hinges are used. The inside of the door on this drawing, from the top of the center rail to the bottom, is straight. This will make the door at the bottom a trifle narrower on the outside, about $\frac{1}{8}$ in., or the difference on the shut bevel, between the width of the door pillar at the center rail and the bottom. The width of the door on the outside, from the center rail of the door to the top-rail, is the same. This will widen the inside distance between the rear standing-pillar and the coupé-pillar on top. The reason is obvious. The same shut bevel is used throughout; and, the pillar being narrower on top, will cause the above-named result. The last-mentioned method of dressing the door-pillar will make the coupé-pillar rounding on the side facing the door, and the door-pillar hollow.

One objection to making the pillar straight is that, if the inside faces of the pillars are dressed square with ground line A, the front door-pillar will then be too light at the bottom; and to give the pillar the necessary thickness, the size of the door pillar on top would have to be increased. The size of the door pillar at the bottom can be increased by dressing the inside of the door pillar square with the contracted line X. This method is generally applied to the bodies of broughams.

The coupé-pillar and rear standing-pillar are fastened to the rockers F and H by glue and screws, the screws to be inserted from the inside of the rocker.

The child's-seat can be fastened to the body by either of the following two methods. The first method is to connect the child's-seat with a bar, *g*, by butt-hinges, the bar being let into the rockers. The second method consists in fastening a plate, having a pivot projecting over the ends, to the top side of the child's-seat. A plate is let into the coupé-pillar, having a hole in the center for the pivot, and long enough for a screw at

each end. The seat is fitted between the rocker-plates, but as the letting in of the plate for the reception of the pivot into the coupé-pillar direct would result in making the projection of the pivot over the ends of the seat too long, the space between the plate and the rear face of the coupé-pillar is filled in. This is usually done with whitewood, but in this instance we would recommend ash, as the latter will afford a better hold for the screws applied in fastening the plate.

To keep the seat in a horizontal position, an iron stop is inserted in the rocker-plate at the proper place. The seat when not in use can be turned upward, and held in position by two nicely finished leather straps, fastened against the coupé-pillar.

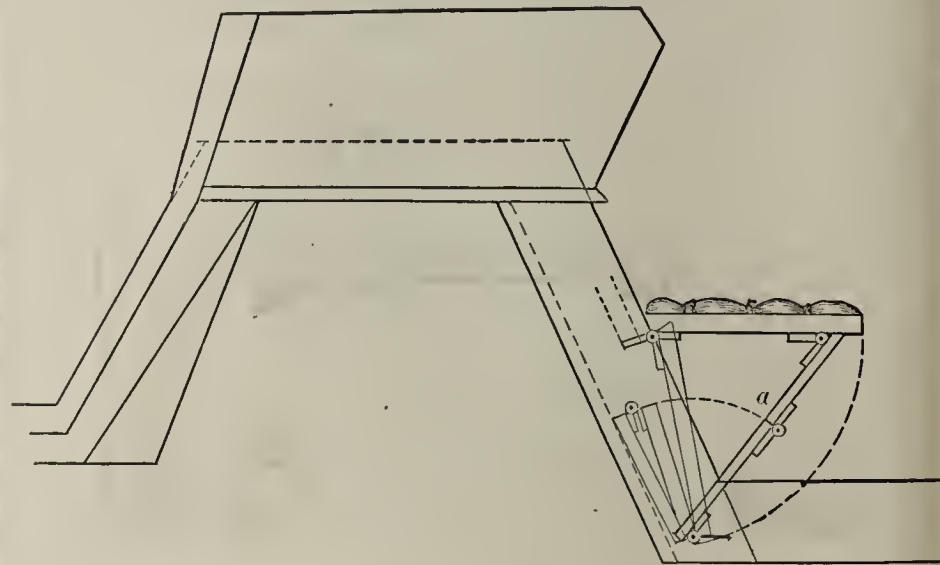
The front consists of two uprights and three cross-bars. The uprights, and the top cross and bottom bars, are made of whitewood, and the center bar of ash. The top bar is made of 4 in. whitewood, and the place for the admission of the frame is boxed out about $\frac{7}{8}$ in. deep. The fence on the center rail is made of iron, $\frac{1}{8} \times \frac{7}{8}$ in., and is screwed to the center rail. The lining boards on the front and rear side of the front have the grain running vertical, or parallel with the uprights, and should be as wide as possible in order to avoid too many joints. The joints are canvased on both sides. The front is held in position by two dowels at the bottom, and a box lock on each side near the top end.

The only serious objection to a Rockaway with a circular front seems to be that the back usually lacks a comfortable rest, which is partly true; but this can be overcome by attaching a movable lazy-back at the proper height, which can be accomplished without great cost.

We would add that the center bar of the front can be made either of two pieces, spliced in the center, or one piece. The first method avoids cross grain of the bar to a considerable extent. ALBERT KEHRL.

NEW DEVICE FOR ATTACHING A CHILD'S-SEAT.

THE accompanying sketch, illustrating how to arrange a child's-seat in two parts, was sent to us by Mr. J. H. Mullin, of Lexington, Ky. It seems well adapted to extension-top phaetons and vehicles of similar character.



The seat, or seats, are fastened to the bottom of a bar framed across the body, by two hinges, $1\frac{1}{4} \times 1$ in. The seat-boards are made of ash, $\frac{3}{4}$ in. thick, the grain of the boards running parallel with the length of the body. The support of the seat is 1 in. wide by $\frac{1}{2}$ in. thick, and is made of two pieces, hinged as per cut. When raising the seat, as shown on the drawing, the support will assume its proper position without reaching under the seat to pull it into place. This is accomplished by cutting the upper portion a trifle shorter than the lower one, at point *a*. If the seat is to be lowered, it is only necessary to touch the support at point *a*, which will cause the support to fold up, and lower the seat. Five hinges are required for each seat.

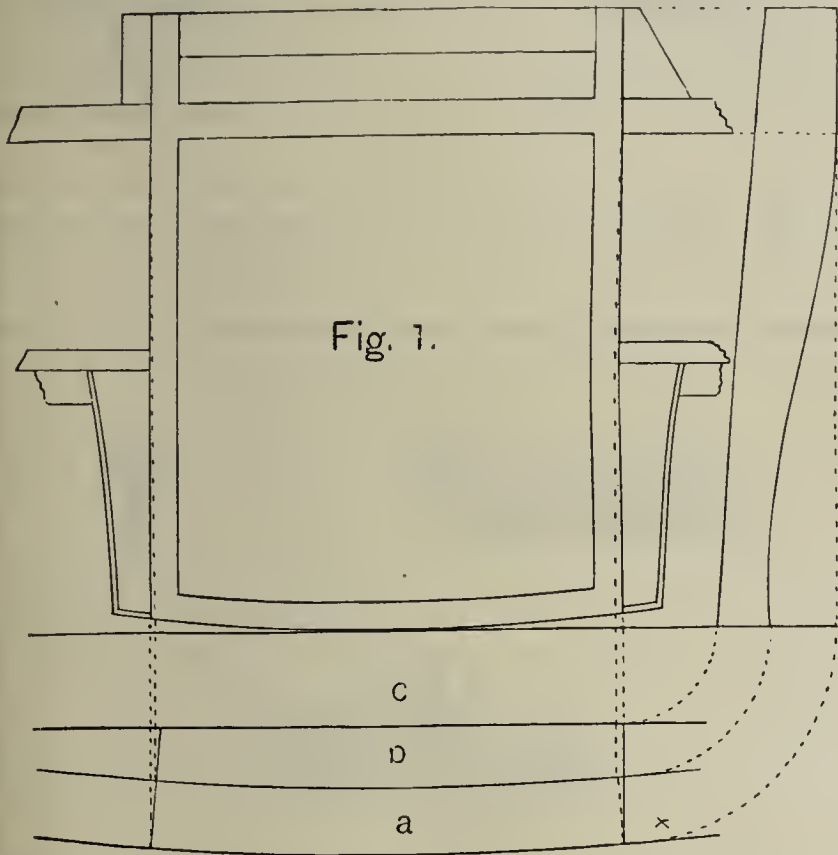
CABS AND BARONETS.

THERE was a time when the nobility and gentry of England who lived at home at ease professed to hold trade in profound contempt. Times have very materially changed. The Argyll family is largely interested in business affairs, and many titled gentlemen are to be found in banks and other mercantile houses. Organ-grinding has not become a favorite pursuit of the English as it is of the Italian noble, but the man whose ancestors came in with William the Conqueror is not above bossing a hansom cab. Sir John Astley, the sporting baronet, although not exactly a noble, is a man of noble mind. When not using his hansom himself, he sends his groom out upon the street to make what "bobs" and "tanners" he can. Sir Astley has been compelled to pay pretty handsomely for his fun. The Duke of Marlborough is also an amateur cabby. It is perhaps a knowledge of this fact that makes our American Jehus as proud as plumbers.

MODERN METHODS OF FRAMING DOOR-PILLARS.

A PROBLEM FOR THE BODY-MAKERS.

"I WOULD like to inquire, through the medium of *The Hub's* Problem Column, as to what is the general practice in the different shops in framing and facing the front standing-pillar on a heavy job. I find that some make the door face of the pillar straight, and bevel it to fit the shut bevel of the door and the contraction, if any, thereby making the door narrower at the bottom than at the top; while others frame so as to make the door the same width at the bottom as

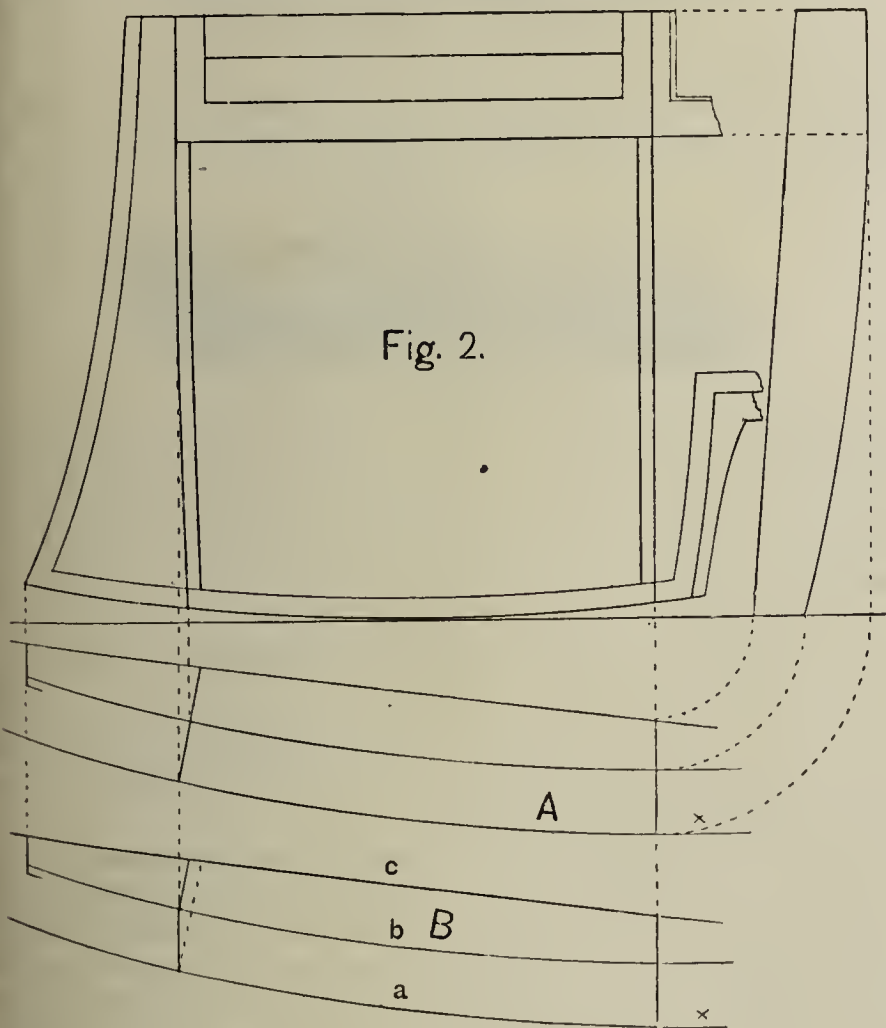


at the top, making the face of the standing-pillar rounding, and the lock-pillar hollowing. I should like to hear from the body-makers on this subject.—ANON, in October *Hub*, 1884.

* * *

REPLY BY A NEW-HAVEN BODY-MAKER.

EDITOR OF THE HUB—DEAR SIR: In your October number I find a problem for the body-makers, which I will try to explain in part, and I hope some brother chip who does not wish to monopolize knowledge of



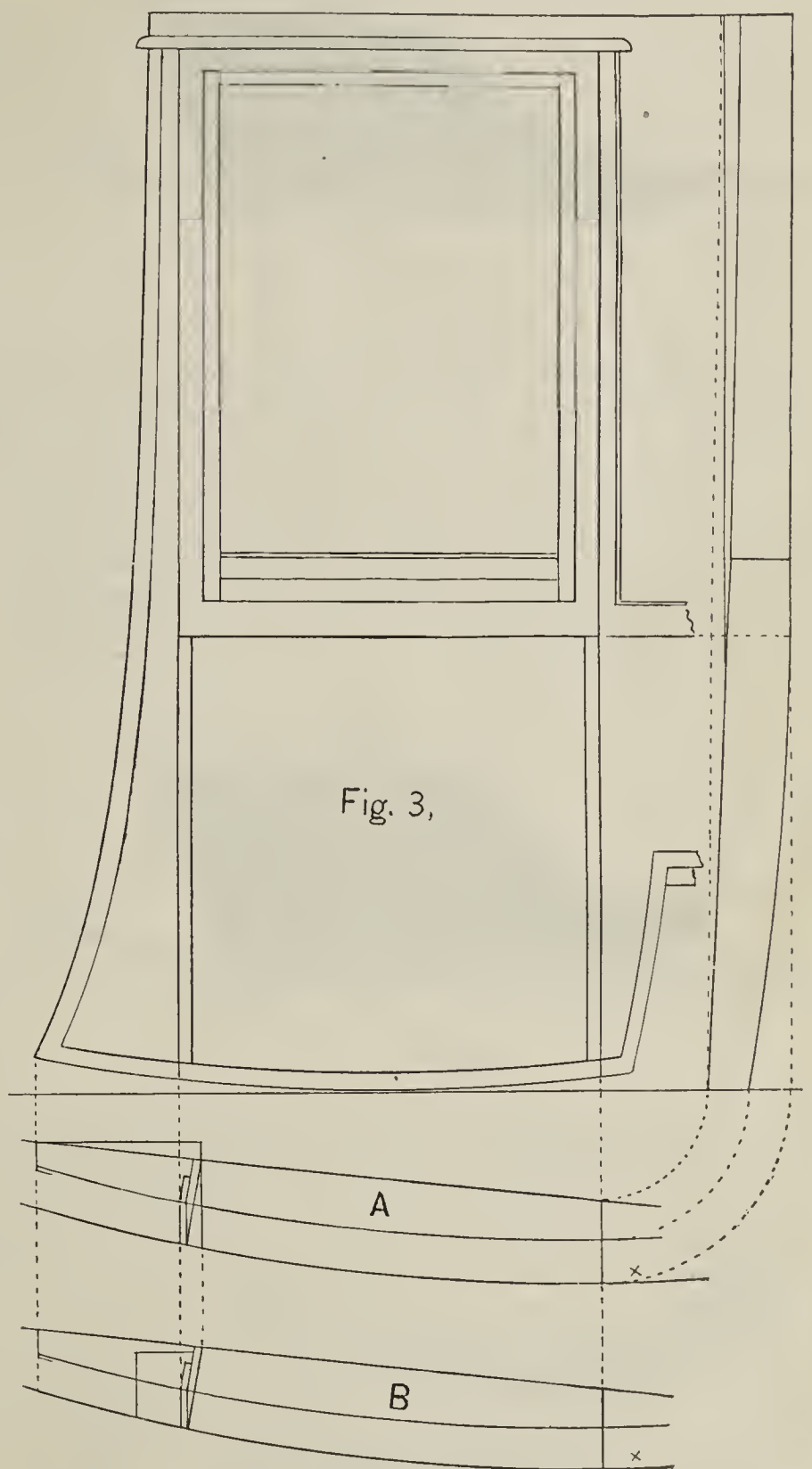
this kind, may thereby be drawn to offer further explanation, for there is much discussion at all times about this subject of framing door-pillars, and a presentation of the various opinions may lead to something profitable for all concerned. Below, I present my views, as a starter.

It will be seen by Fig. 1, which represents a landau or coach door with double-sweep turn-under, that the door moldings are straight,—that is, the door has the same width both top and bottom. Straight lines are dropped to the cant, where line *a* represents the belt; line *b*, the bottom of the door; and line *c*, the rocker.

With *x* as a center for the hinge, we find the shut bevel of the door. This bevel makes the door narrower at line *b*, or narrower at the bottom than at the top, as shown by the dotted line on the door molding. The door face of the pillar is straight, which is the most common, and probably the simplest method of framing.

No fault is found with the narrowing of the door, but, on the contrary, some builders desire it, and taper the back pillar also, as shown by dotted line, which narrows the door still more. This is claimed to improve the appearance of the job. But this narrowing of the door is generally objected to on jobs having much contraction, because then the bevel face of the pillar is much greater, as shown in Fig. 2, cant A, where it causes the door molding to curve from the straight line in turning under.

In this case, to make the door molding appear straight, and have the door of one width to the bottom, it is necessary to carry the face line of the pillar straight in on the turn-under, parallel with the face of the



hinge-pillar, or from line *a* to line *b*, on cant B. This going straight in on the turn-under, as will be seen, increases the amount to be shaved or cut off from the face of the pillar toward the bottom, which makes the pillar rounding toward the bottom, and maintains the straight line of the door, or parallel with the face of the hinge-pillar as on Fig. 3.

To keep this line straight, some body-makers frame from a square line, as on cant A, Fig. 3, and gauge off for the bevel afterward, when gauging for the door rabbet. This gauging maintains uniform width of the door; and, as it turns under, it causes the bevel face of the pillar to dress rounding. However, to frame from a square line, as on cant A, requires a very large pillar to start with; and, to save material and labor, cant B may be used. By this, it is necessary simply to face on the contraction and door bevel, then dress off outside and at the bottom, and point off to the parallel line. Several points on the turn-under may be used, but, for sake of expedition, it may be marked with a straight-edge, bent square with the face of the hinge-pillar, which will give the same result, including the requisite roundness to the bevel face of the pillar;

and thence, following the lock-pillar, this method will maintain an even opening from top to bottom.

By framing in the manner last described, a very large pillar may be made from a four-inch plank, which can easily be procured; while to frame from cant A requires either the employment of a much thicker pillar, or the gluing on of pieces, which can in no case be recommended.

Respectfully yours,

JAMES BURNS.

NEW-HAVEN, CONN., Nov. 1, 1884.

HINTS FOR BODY-MAKERS AND DRAFTSMEN.

XII. TWO DESIGNS OF DOG-CART BODIES.

WE present below two additional designs of Dog-cart bodies, received from Mr. M. Kent, of Staines, Middlesex, England. For four preceding designs of Dog-carts by the same draftsman, see last number, page 546.

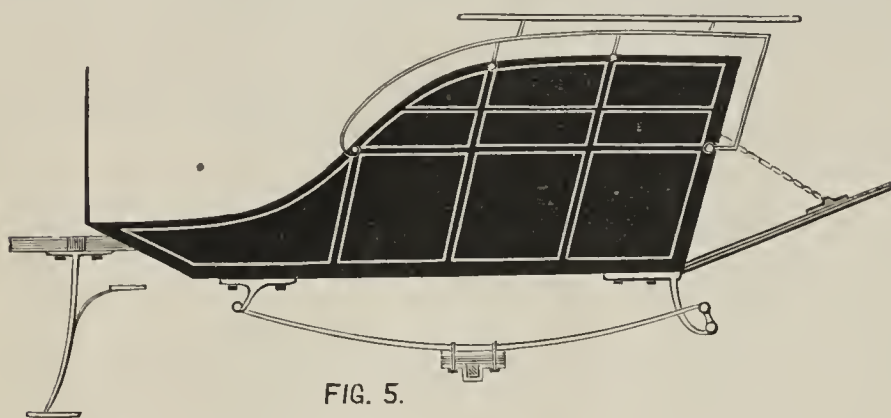


FIG. 5.

Fig. 5 differs in several respects from all the others. The principal change is the curved line on top of the body. The moldings, as in the case of Fig. 4, are quite heavy, which is becoming to this body. The front comes almost to a point, being only $\frac{1}{2}$ in. thick. The side panels are put into a groove all around. The moldings between the pillars and the top-rail and bottom sill are glued in. It will make a good-looking job if the upper section of the body is left open; or, if preferred, imitation canework can be used for the upper panel. Width of body on top, 41 in., and ditto bottom, 36 in. Height of body from the ground, $34\frac{1}{2}$ in. Height of wheels, 4 ft. 2 in.

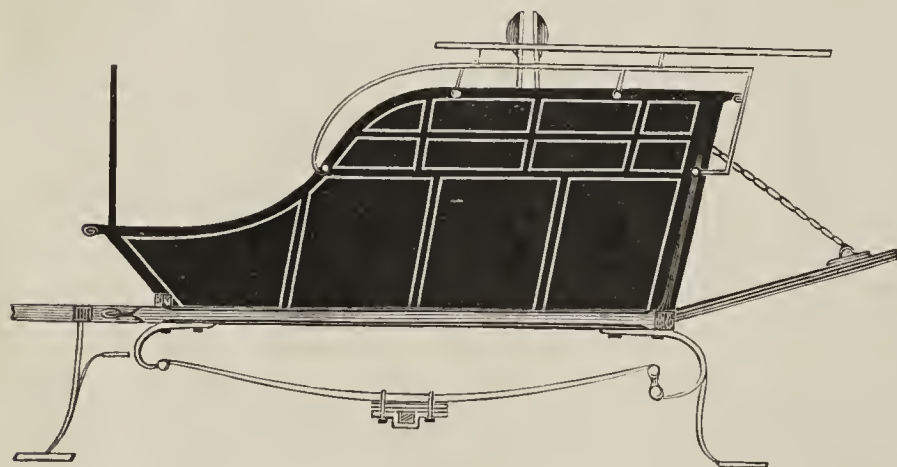


Fig. 6.—This should make a handsome and salable cart. The top sweep of the body is fuller than on Fig. 5, and the top-rail terminates in a scroll at both front and rear. The shafts are framed into the back bar, and bolted under the front bar. These bars are finished off at the ends with scrolls. The rear corner-pillar is strengthened on the outside by an iron stay. The moldings are heavy, as on Fig. 5, and the lower panel is put into a groove. We recommend rabbeting the upper panel into the rails and pillar from the inside, which will better set off the upper part of the body, and render the moldings more prominent. Width of body on top, 40 in.; and ditto bottom, 34 in. Height of body from the ground, 37 in. Height of wheels, 4 ft. 8 in., or 4 ft. 6 in.; but in the latter case, the body should be hung 1 in. lower than we have named.

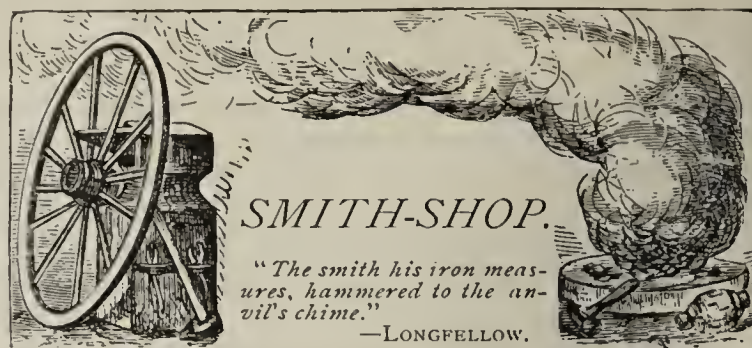
TABLES OF CARRIAGE TRACKS WANTED.

GRAND RAPIDS, MICH., Oct. 17, 1884.

TO THE HUB: We want a book that will tell us the different widths of tracks of carriages used in the different States. Where can we get one? If you have such, please send it to us at once, C. O. D. SPIRAL SPRING BUGGY CO.

ANSWER.—Full details regarding the carriage and street-railway tracks of the world were published in our last volume, pages 648, 649, 720 and 796 (January, February and March, 1884), to which our correspondents will please refer. This is the only form in which we are now prepared to supply these tables, and in the above they are complete and carefully corrected to date.

COLD weather is the blacksmith's harvest. Horses have to have their shoes calked every few days.



SMITH-SHOP.

"The smith his iron measures, hammered to the anvil's chime."
—LONGFELLOW.

HOW TO MAKE SOLID CLIP-YOKES AND DROP-BOLTS ON AXLES.

"EDITOR OF THE HUB: Please illustrate and explain how I must set about to make an axle, with clip-yoke and drop-bolt solid on it."

W. H. P., of St. Louis, Mo.

ANSWER.—Proceed as follows: First cut off the clip-yoke, as per Fig. 1, A being the yoke. Then set a hot punch in at B.

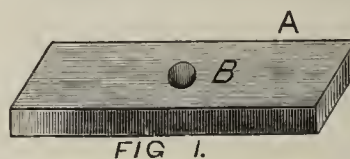


FIG. 1.



FIG. 2.

Then make the drop bolt as per Fig. 2, C being the bolt, and D the head.

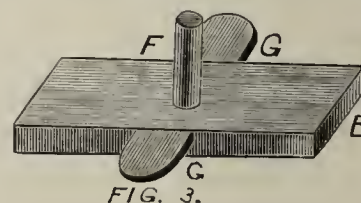


FIG. 3.

Then weld the part shown in Fig. 2 on to that shown in Fig. 1; and you thus get Fig. 3, E being the yoke, and F the bolt. Then with a hot tool form the legs G G.

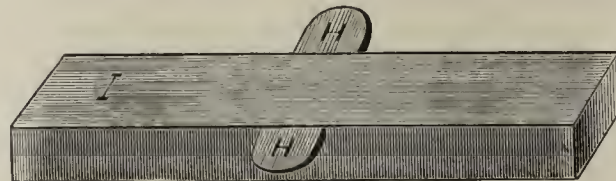


FIG. 4.

Next prepare the axle as per Fig. 4, I being the axle center, and H H the legs or ears.

Then weld Fig. 3 on to Fig. 4, and get as a result Fig. 5, J being the axle center, K the drop-bolt, and L M the clip-yoke.

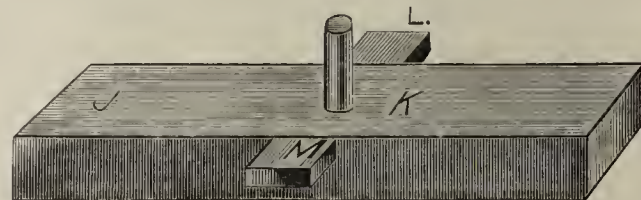


FIG. 5.

Make the clip-yoke and bolt of good tough iron, and weld the bolt on to the yoke in a tool. Also have a tool with hole in, together with a vise, with which to set the yoke on to the axle at the first part of the heat. Then set in with fullers, and dress with set-hammers. Clean off with hot file.

N. Y. S.

THE NEWEST IDEA IN BLACKSMITHS' FORGES.

LOUISVILLE, KY., Nov. 3d.

EDITOR OF THE HUB—DEAR SIR: I wish you would either send me a drawing of the latest improved forge adapted for a carriage blacksmith-shop, or tell me where I can obtain such, and oblige.

D.

ANSWER.—The newest idea in forges for blacksmiths' shops is the movable iron forge, either single or double, which is lighter than the old style, and preferable in every way, especially in the economy of space which it allows. The best and newest of these are the ones employed in Healey, Williams & Co.'s new factory, which you will find alluded to in the September *Hub*, 1884, page 415. If you will send us a request, as a sort of bait, we will endeavor to secure a drawing of one of these for publication.

You will find in back volumes of *The Hub* numerous designs of the ordinary brick forges; but we think you would greatly prefer the ones above-mentioned.

"DON'T buy a coach in order to please your wife," advises an exchange; "it is much cheaper to make her a little sulky." It is still more economical to marry a woman who possesses a graceful carriage.—*Norristown Herald*.

HOW TO REMEDY THE SHIFTING OF TIRES.

A SUBSCRIBER in Watertown, N. Y., writes as follows: "What is the use of having journals published in the interest of the trade unless we profit by them? If we don't find the information we want, when we pick up *The Hub*, we can get it in a later number by sending a statement of facts. This, at least, is what I take to be the proper course to pursue. Now, then, may I ask you to open your knowledge-box, and to please enlighten me on the subject of the shifting of tires. We frequently find that, in damp weather, our tires move or shift between the bolts, and yet the tires are apparently tight. I cannot understand it; and I want to ask you to please state the reason of such action, and to suggest a remedy."

ANSWER.

The first thing to do is to correct an erroneous impression which many builders hold. As a matter of fact, the tire does not shift on the rim in such cases, but the rim moves away from the tire. When the tire moves, it is because of a lack of proper fastening appliances, such as bolts, screws or nails. There is one exception to this rule, namely: If the tire is so twisted when applied as to be higher on one side than on the other, then the tire may possibly move from the rim.

The shifting of rims from tires between the fastenings is most often due to the following causes: When the tire is applied, either new or in resetting, the rim and the wheel throughout are supposed to be perfectly dry; but rainy or moist weather, or the placing of the wheels in a damp place, will, of course, allow them to absorb moisture, and this may easily be sufficient to cause the whole to swell. Indeed, in some instances where the weld was not a perfect union, such swelling has proved sufficient to cause the breaking of the tire at the weak point. This swelling of the wood produces an increased diameter of the rim, by elongating it more or less, and it thus places a greater tension on the tire. The spokes will also be liable to buckle. There will also be an increase of friction. If, in this condition of tension, the wheels be run over a rough pavement, the rims will accommodate themselves to the situation by shifting or bulging from the tire on one or the other side.

When the wheel again dries out, the rim will generally assume once more its proper place under the tire.

A sufficient number of bolts or screws to bind the tire securely in its place, whatever the strain may be, is the only remedy we know of to employ in such cases.

TOOLS ADAPTED FOR A BLACKSMITH'S FORGE DEVOTED TO LIGHT WORK.

ONE of our subscribers, Mr. L. R.—s, referring to our August number, says: "Your article on 'Hammers and Tools' (page 331), just fills my bill to a T. Now, then, please tell me what ought to constitute a full set of tools for a forge for light work, that is, buggies, light phaetons, carryalls and sleighs."

In response to the above inquiry, we give below a full list of the tools necessary for the class of work mentioned.

First, of course, you need the usual forge and bellows, and an anvil of about 150 pounds in weight,—though ten to thirty pounds, more or less, will make no material difference. In the way of vises, you need a forging or hot-iron vise, of about 80 pounds, more or less, and a finisher's vise of 60 pounds.

In hammers, you want two hand-hammers, one two pounds, and the other one and one-half pound in weight; also a splitting hammer of about twelve ounces, and three bench or riveting hammers, namely: one pound, one-half pound, and one-quarter pound in weight, all made of cast steel. You also want a ten-pound cast-steel sledge, and a five-pound backing hammer, which may be made of iron with steel face and pane.

In chisels with handles, you want one cold chisel, two hot chisels, and one long, thin splitter. In hand chisels you want two splitters for the forge, and three or four chipping chisels for the bench. Have, also, a gouge or two, and a few smaller and narrower chisels; a short and long center punch for the forge, a strong center punch, and a small fine-pointed one for exact centering for the bench.

In the way of files, you need a hot iron file for the forge, about 30 inches long, $1\frac{1}{4}$ inch wide, and $\frac{3}{4}$ or $\frac{5}{8}$ inch thick; also an ordinary 14-inch half-round file and a 14-inch flat file which have already been used up at cold filing, to be used for the purpose of removing scales, borax, silicon and other substances. For the bench, you also need two each 14-inch flat and 13-inch half-round bastard files; one 16-inch rubber; two each 8-inch flat and half-round bastard files; one each 6 inch and 8 inch round and square; one 3-inch flat and one half-round file; and a fine-cut file for bit sharpening. Where the files are mentioned above in duplicate, it means that one of each kind has been worn, and is to be used in roughing or removing scales, dirt, etc.

In drills, commence with $\frac{1}{8}$ inch, and then let the sizes increase by $\frac{1}{32}$ of an inch up to $\frac{1}{2}$ inch; or, to make close-fitting work, let the changes ring on $\frac{1}{16}$ of an inch up to $\frac{7}{16}$ inch; then by $\frac{1}{32}$ up to $\frac{9}{16}$ inch; and then by $\frac{1}{16}$ up to $\frac{3}{4}$ inch, which will give an ample variety for average work. Twist drills are much the cheapest. You will want a square reamer, and a half-round one, and two or three countersinks, one of them to be with rose head; and also two or three screw-drivers, one for the smaller sizes of screws, one for the average size, and one for the larger and stubborn ones. A set of box wrenches, which you can get for a song in malleable cast-iron, are always handy.

Next, you want an appropriate screw-cutting apparatus, as mentioned in a former chapter. Then you want a good brace. We prefer a reversible ratchet brace, which allows of boring in corners. Twist drills are nearly as good for boring holes in wood as the average auger bit. Two or three scratch awls are also important, and a joint-holder for holding joints while filing them, which Ten Eick & Kent, of Broadway near 46th-st., New-York City, can supply to you.

Next, you need two, each, hand-screws or clamps, 3-inch, 4-inch, 5-inch and 6-inch; also one 10-inch hack-saw, one gimlet bit each, $\frac{1}{8}$ inch, $\frac{5}{16}$ inch, $\frac{3}{8}$ inch, $\frac{7}{8}$ inch, and $\frac{1}{4}$ inch.

A piece of woolen or cotton card, nailed on to a flat strip of wood, with which to keep files clean, is of great utility. A hand vise, or two, is also of great value, and can be had cheap.

In swages, you want one each, top and bottom, in rounds $\frac{3}{16}$ inch, $\frac{1}{4}$ inch, $\frac{5}{16}$ inch, $\frac{3}{8}$ inch, $\frac{7}{16}$ inch, $\frac{1}{2}$ inch, $\frac{9}{16}$ inch, $\frac{5}{8}$ inch, and $\frac{3}{4}$ inch. Of oval swages you want $\frac{3}{8} \times \frac{1}{16}$, $\frac{3}{8} \times \frac{1}{4}$, $\frac{7}{16} \times \frac{1}{4}$, $\frac{1}{2} \times \frac{1}{4}$, $\frac{1}{2} \times \frac{5}{16}$, $\frac{1}{2} \times \frac{3}{8}$, $\frac{9}{16} \times \frac{5}{16}$, $\frac{9}{16} \times \frac{3}{8}$, $\frac{5}{8} \times \frac{5}{16}$, $\frac{5}{8} \times \frac{3}{8}$, $\frac{5}{8} \times \frac{7}{16}$, $\frac{3}{4} \times \frac{5}{16}$, $\frac{3}{4} \times \frac{3}{8}$, $\frac{3}{4} \times \frac{7}{16}$, and $\frac{3}{4} \times \frac{1}{2}$ inch. Your top swages, round ones, will do your half-round work, and your top oval swages will do your half-oval work.

You next want a setting hammer, and a flatter. You want, also, in top and bottom fullers, as follows: $\frac{1}{4}$ inch, $\frac{3}{8}$ inch, $\frac{1}{2}$ inch, $\frac{5}{8}$ inch, and $\frac{3}{4}$ inch, and also an anvil bending iron.

You would not be too well supplied if you also had half a dozen twisting or scroll wrenches and forks.

In tongs, you need not less than four pairs of graduated close tongs, and two pairs each of other tongs, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{7}{16}$ and $\frac{5}{8}$ inch. Have also one pair each $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, and $\frac{3}{4}$ inch. Have also one or two pairs of bolt tongs; and one or two pairs of tool-dressing tongs, and a pick-up for front of anvil, and a pair each of goose-bill tongs, $\frac{9}{16}$, $\frac{1}{2}$ and $\frac{3}{4}$ inch.

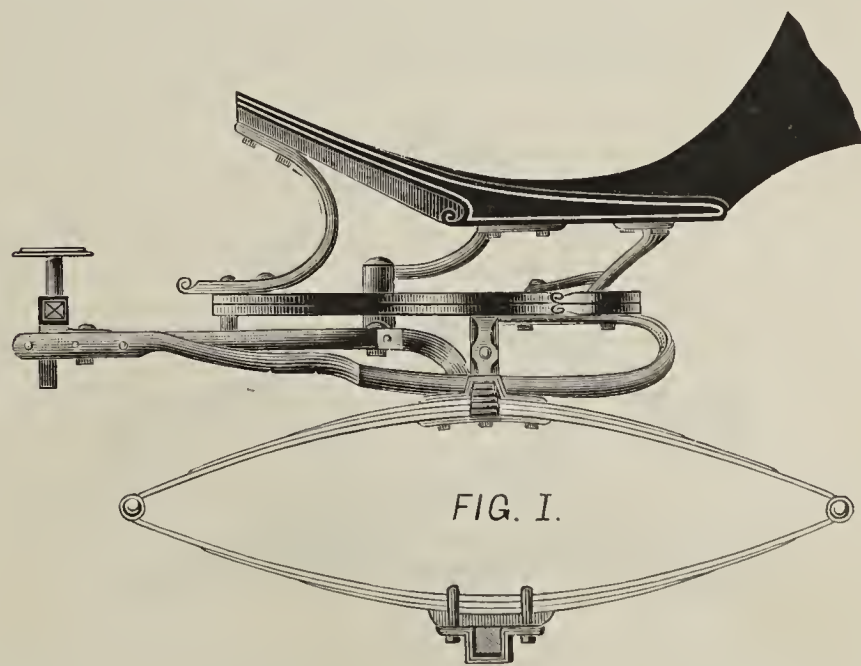
A spirit level is always handy to have about, and also the square and bevel, a two-foot rule, one or two pairs of compasses, inside and outside calipers, a set of gauges, the latter made from sheet steel, and two or three straight-edges of different lengths.

With the above, your kit of tools is complete, and worth all the way from \$250 to \$400. If properly taken care of, it should last long enough to pay for itself many times over.

FRONT GEARING FOR LIGHT VICTORIA OR OTHER MEDIUM-SIZE VEHICLE.

(See four illustrations on this and the following page.)

THE sketches, mechanical description and list of principal dimensions of this gear, as presented in this article, were kindly furnished by Mr. R. H. Lee, of Philadelphia, foreman in the smith-shop of Mr. Wm. D.



Gardner's carriage factory. They suggest several new points, to which attention will be duly drawn in the following description. Fig. 1 represents the side elevation; Fig. 2, the front view; Fig. 3, the top view of the bottom gear; and Fig. 4, the top view of the top gear.

As shown in the drawing, only two pieces of this gearing are made of wood, namely: the bottom-bed and splinter-bar. All the rest is of iron. The wooden bed is straight across, but swept upward. The iron bar in

front, which receives the kingbolt, is bolted at the ends to the wooden bed, and is then swept so as to come nearly on a line with the wooden bed.

Fig. 1 indicates the positions of the various pieces, as they appear when viewed from the side.

Fig. 2, the front view, shows the shape of the splinter-bar. It will be seen that this bar is swept down in the center, and the pole-socket is

The dimensions of the springs are as follows: 34 in. long, from out to out, with 10 in. opening over all; width of steel, $1\frac{5}{8}$ in.; number of plates, three, namely: the first No. 2, next No. 3, and last No. 1 steel.

This gear is principally intended for vehicles of medium size, but is equally adapted to six-passenger rockaways, etc., on condition, of course, that a proportionate increase is made in the dimensions and strength of the different pieces.

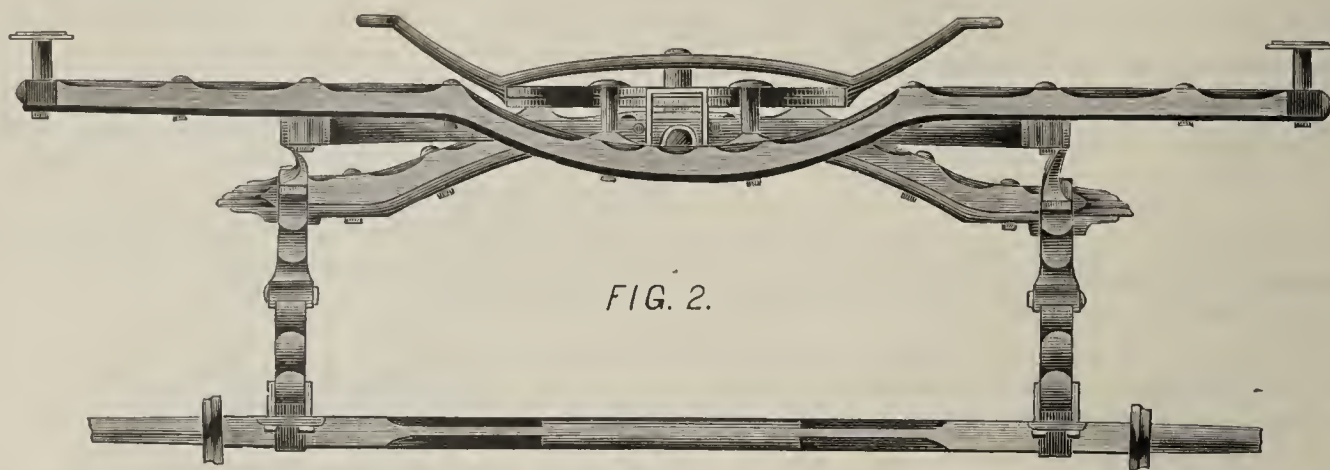


FIG. 2.

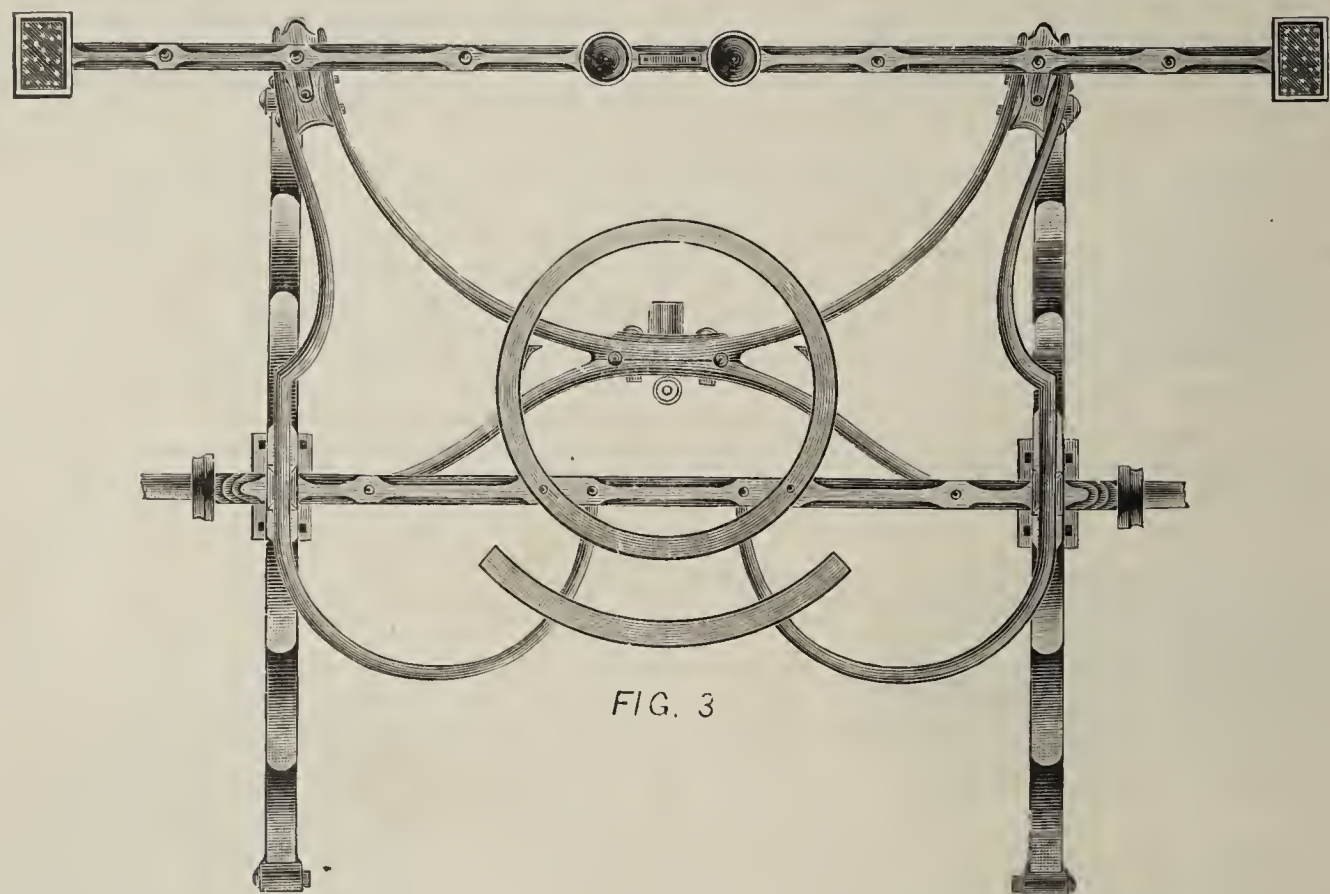


FIG. 3

FRONT GEARING FOR LIGHT VICTORIA OR OTHER MEDIUM-SIZE VEHICLE.—SCALE, ONE INCH TO THE FOOT.

(See description on this page.)

bolted on top of the splinter-bar. Our correspondent does not claim for this arrangement any special advantage over the straight bar, but has merely intended to make a change from the old method.

Fig. 3 shows the construction more in detail than Figs. 1 and 2. The stay forming the fuchels has a compass sweep, and is attached by two bolts to the front bar, these bolts taking also the pole-socket. The boss for the king-bolt is welded solid on to the iron front bar. The spring-

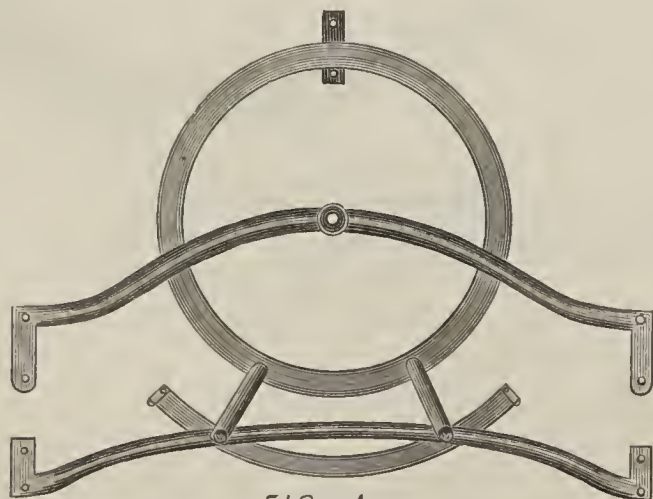


FIG. 4.

stays are bolted to the wooden bed and fifth-wheels, and from there are swept downward to the springs. [See Fig. 1]. The fronts of the spring-stays are swept differently than usual, and the change seems a decided improvement.

Fig. 4, the top view, shows the main fifth-wheel and sectional fifth-wheel, and the short stays connecting the fifth-wheels. The kingbolt, or front bar, the full and sectional fifth-wheels, and the connecting bars, are made solid. The rear bar is bolted to the sectional fifth-wheel.

PRACTICAL HINTS TO FINISHERS IN THE SMITH-SHOP.

THERE are many sizes of bolts used in the construction of vehicles of the various kinds, from the sulky to the massive truck used for conveying steam boilers and other heavy materials, which vary in size from $\frac{1}{8}$ in. to $\frac{1}{2}$ in. diameter; and, in the line of screws, the sizes vary from gauge No. 4 up to No. 20, or more.

Each of these bolts and screws is adapted to a certain duty; and if properly applied, will perform its function. But the average finisher, in preparing an iron for a bolt of $\frac{5}{16}$ in. diameter, will too often drill a hole of $\frac{3}{8}$ in. diameter, when a hole of $\frac{11}{16}$ in. would admit of the passage of the bolt. For the passage of a No. 10 screw, a hole is often made sufficiently large for a No. 12 screw.

Another common error is, that when the iron is placed on the wood, the holes are laid out and bored, and then finished by punching a red-hot iron through the hole, thereby charring and partially destroying the wood all around the hole. The proper method is to avoid the use of a hot iron. Bits are graduated in sixty-fourth inch sizes, and when they are not to be had, a round file will serve the purpose much better than a hot iron. The more nearly bolts and screws fit the holes in wood and iron, the better the work will be, and the longer it will last,—all of which is to the credit of the finisher.

AN Irish coachman was requested by a lady to do some work for her, which he performed to her complete satisfaction. "Pat," she said, "I'll treat you." "Heaven bless your honor, Ma'am." "What would you prefer, a pint of porter or a tumbler of grog?" "Well Ma'am, I don't wish to be troublesome, so I'll take the one awhilest you're making the other."



HOW ARE THEY PAINTING SLEIGHS THIS SEASON?

IN connection with numerous inquiries received from our painter correspondents during the past six weeks, we present below a brief review of the facts which we have already forwarded to them by mail, covering a large class of questions bearing upon the general topic, "How are they painting sleighs this season?"

The cutters, both Portlands and Albanies, retain the general outlines of previous years, though perhaps somewhat lighter in appearance. In their ground colors they are generally dark, the prevailing grounds being browns, greens, and now and then blues. In ornamentation, the colors this season are unusually light and showy, including carmines, yellows, blues and lakes. Perhaps the best way to describe their characteristics will be to describe a few specimen jobs which have especially attracted our attention.

* * *

SPECIMEN NO. 1: STANDARD PORTLAND CUTTER.

This is a light Portland Cutter, of plain and rich style. The body has a rich lake ground, of the purple order, with a broad stripe of gold and fine lines of light carmine. The dasher is painted on both sides with carmine of the medium shade, and finished with a broad stripe of gold and fine lines of black. The running-gear is painted a lighter shade of carmine, and full-striped with black,—that is, it has a one-eighth-inch stripe of black in the center, with distanced fine-lines of same. The above gives a very neat appearance.

The trimming is in crimson plush, which will be found to suit the painting above described.

SPECIMEN NO. 2: SHOWY PORTLAND CUTTER.

Here is another light Portland Cutter, gay and showy in appearance, yet also neat. The body has a ground of "perfect yellow." This is a new color in New-York, which promises to come extensively into fashion. It is already supplied by Valentine, Masury and others, and well merits a trial by all who have not yet tested it, and who desire an article which the name of this color describes. This "perfect yellow" is of the lemon order, but with a slightly greenish tinge. It is beautiful in itself, possesses good body, is comparatively easy to employ (which could never be claimed of "canary yellow"), and has excellent wearing qualities. This yellow body is striped with a three-eighths-inch stripe of gold of the range hue (avoid other hues of gold over this yellow), with distanced fine-lines of black. The dasher is painted on both sides with neutral green of the olive hue, tending toward brown. If this is made of a delicate shade, with the green well subdued, and made to properly harmonize with the yellow body, the result is surprisingly beautiful. The gearing accompanying is painted in deep carmine, striped with black.

This yellow job is trimmed in light drab plush.

SPECIMEN NO. 3: ALL-LAKE PORTLAND CUTTER.

Here is a very modest Portland Cutter painted entirely in lake. The body and dasher have a ground of brown, between Munich and purple lake, or a little lighter than usual for such a ground, glazed with ordinary purple-lake. This is striped with two medium fine-lines of gold, or it may be gold-bronze, five-eighths of an inch apart. The running-gear is painted with the same ground as that of the body, and striped in the same way. The trimming is in brown cloth.

This gives a subdued, but very rich appearance, and should meet the taste of many private customers who would not look at the yellow job next above described.

SPECIMEN NO. 4: STANDARD ALBANY CUTTER.

Albany Cutters do not seem to be much in fashion at present, although, in our opinion, they far surpass the Portland pattern in both beauty and comfort. Here, however, is a fine specimen.

The back and main side panels of the body are painted in dark green, of the shade now commonly known in the trade as "Brewster Green," of the deep shade. This is the most perfect imitation of the true yellow-lake green which can be produced without incurring the expense necessary to glazing with yellow-lake. It makes a solid and lasting color, and in the latter respect it possesses an advantage over the legitimate glazed yellow-lake green, which is always liable to fade. The above-named panels are finished with a half-inch stripe of deep carmine, with distanced fine-lines of light green.

The two small side panels are painted black, with a half-inch stripe of gold, distance fine-lined with light carmine.

The dasher and wings are painted black on both sides, and have a half-inch stripe of gold, with a distanced fine-line of light carmine on one side, and a similar line of pea green on the other side. The gold stripe is also edged with fine lines of yellow, of two shades, namely: a light yellow toward the carmine fine-line, and orange yellow toward the pea green.

The above method of painting Albany cutters seems to have become quite standard among some of the Hudson River builders, including Mr. A. Acker, of Sing Sing, N. Y.; and it is certainly neat and tasteful.

The trimming of the above job is green plush of the olive hue.

SPECIMEN NO. 5: PONY SLEIGH.

Under the general term of Pony Sleighs, modern builders are accustomed to group all two-passenger sleighs having rumbles attached. Here, for instance, is a very artistic one, built by a New-York house.

The body and dasher are painted in purple lake, striped with a double fine-line of carmine. The rumble is painted black, without any ornamentation. The gearing is painted and striped precisely the same as the body. The trimming material is a brown cloth.

It will be noticed that the finish just described is as plain as that of a private carriage, and this is its distinguishing characteristic. The cutter may appropriately be gay and showy; but the Pony Sleigh, intended only for the richer class of customers, should have more dignity. The Cutter is suggestive of the days of bachelorhood, while the Pony Sleigh is equally suggestive of married comfort and elegance.

SPECIMEN NO. 6: FOUR-PASSENGER PORTLAND SLEIGH.

Here, by the way, is a Four-passenger Portland Sleigh made by a Hudson River builder, after the design made public in our July number, 1884; and by referring to our original drawing, Fashion Plate No. 29, the reader will be better able to understand and appreciate the manner in which it is decorated.

The body is painted blue. The groundwork, we understand, is of Prussian blue, tinted with white; and this has been glazed with ultramarine. The moldings and skirts of the seats are black, finished very attractively with light straw-color, made of Naples yellow tinted with vermilion. The running-gear is painted and striped the same as the body. The trimming is a blue cloth.

The above makes a very rich finish, which we can recommend for cutters as well.

* * *

The above specimens seem sufficiently suggestive of the styles of sleigh painting which are in vogue this season. It will be noticed that they include lakes, carmines, yellows, greens, and blues; and these are the prevailing colors.

We have looked in vain, this season, for a Six-passenger Albany Sleigh. They seem to have gone out of fashion; and as substitutes we now find Wagonet and Cabriolet Sleighs, and an endless variety of composite styles.

W. B. L.

AN ENGLISH ATTEMPT TO ECONOMIZE TIME IN COACH PAINTING.

LONDON, ENG.

NEW notions are not nearly so plentiful a crop in England as in the United States, and when they make their appearance they are received with an amount of coldness and suspicion that even cute Yankeedom cannot supply.

Perhaps it is this marvellously keen frost of doubt and unfriendliness which nips in the bud many notions which might otherwise mature into useful inventions. Perhaps it is also partly the result of our defective patent laws, now happily being amended, which hamper and burden an inventor without effectually securing to him the legitimate benefit of his ideas. Anyhow, it remains a fact that a man with a notion or an invention which has not been thoroughly tested, is looked upon as a plague, and is absolutely avoided by any man of business who values his time,—and even among those whose interest it is to avail themselves of every improvement, and if possible to be first in the field.

Britishers having notions are certainly few and far between, as compared with the citizens of the United States. Still, some few notions of hardy growth, or backed by more than ordinary intelligence, industry and perseverance, occasionally succeed in struggling to the front and gaining more or less public notice, and of one of these the following brief particulars may be of interest.

This new notion, which has hardly yet made its way among coach-makers, but is being pushed forward with promise of success, is a claim to have discovered a means by which the labor and time of painting a carriage may be reduced to a few days, instead of the weeks at present occupied in the process. The owner of the idea, a Mr. Williams, of Wigan, Lancashire, has published a small book on the subject, in which, among other things, he describes as follows the present method of paint-

ing a carriage body,—not precisely that carried out in London, but substantially so. He says:

"Begin by giving the work a coat of thin lead-color, composed of moist-lead, lamp-black, linseed oil, turpentine, and patent dryers. The less paint used the better, taking care not to leave it thick upon the edges or moldings, but covering all cracks, brad holes, etc. Give 3 or 4 days to dry and harden. Apply another coat of the same paint, then a third; slightly sand-paper before each coat is applied. When the last coat is dry, say 4 days, make a pot of filling composed of "patent filling," to which is added about a fourth quantity of moist white-lead, thinned with turpentine, and bound with gold-size. This filling should be quite limpid. Two thin coats are better than one thick one, because the latter would fill up the beadings and carvings. This paint will dry very quickly and may be applied three times in one day. After the second coating is dry, rub the palm of the hand over it, and if it stains freely, add more gold-size. Next day apply three more coats; this will in most cases be sufficient. Let the work stand for 3 or 4 days. The next operation is "rubbing down." When quite smooth and no brush marks visible, the whole is washed and allowed to dry. Then apply a coat of lead-color as before, and when dry make a cement called "stopping" with dry white-lead, ground in turpentine, and slightly bound with gold-size. This is used to repair any defects that the "filling" has left. When the stopping is hard, level it carefully with pumice-stone and water down to the surface. Give the work a smart rub over with fine sandpaper, and then apply another coat of lead-color. The body is now ready for the final color chosen."

As it is in this part of the process alone that a change is proposed, it is not necessary to follow this description further, but I will proceed at once with the proposed substitute.

The writer claims to have discovered the means of producing a new quality of varnish, "made from very hard varnish gums, and non-absorbent," which is an effectual preserver of wood, resists the moisture in unseasoned wood as well as atmospheric changes, is very elastic, will not peel or blister off, is easily applied, and quick and hard-drying. Three coats of this, he says, will make a surface like glass, very hard and durable, and by its use a carriage body can be ready for finishing color in two days or less. Now for the actual process as proposed. He says:

"Fill up all holes and crevices with a cement made by melting beeswax in combination with rosin or shellac. The next thing is 'pore' closing and 'hole-filling'; for this he advocates plaster of Paris made into a creamy paste with water, as a 'most valuable material.' 'It is to be rubbed by means of a coarse rag across the woody fibres,' and 'the superfluous stuff instantly wiped off, or, if allowed to dry, rubbed with a piece of pumice-stone; when dry give the *first coat of varnish*. * * ' 'In putting on the first and second coats the tool may be worked across the grain, but in the finishing or third coat it must be worked along the grain, and in every case the varnish must be equally and evenly laid on. The brush should be firmly yet lightly handled; it should also be plied with a degree of speed, as this varnish has not the slow-setting properties which distinguish those of oil. Give a good, even flowing coat, with no rubbing of the tool. Allow about four hours to dry. Much depends upon a warm, dry atmosphere, free from draughts of dust, yet having sufficient ventilation at hand, if needful. Then smooth with fine glass-paper. * * * When the work is coarse, it ought to be freely moistened with linseed oil and then papered. Under this treatment a thin paste is formed by the attrition, which not only reduces the unevenness more effectually, but materially assists in filling up the open pores. *2d coat*.—Proceed as with the first, except that the process of smoothing is effected by rubbing with a piece of coarse cloth or thick flannel, thoroughly saturated with a paste formed of water and ground pumice-stone. Allow about 6 hours to dry before rubbing. *3d and last coat*.—Proceed as before, only that this must be worked along the grain, allowing eight hours to dry and harden, then rub down with pumice-powder and water."

This completes the preparation for the finishing color, which is applied as in the old method; and it is alleged that there is less paint to absorb the succeeding coats of varnish, and much less will suffice.

Such is the new notion of Mr. M. Williams, of Wigan, who has thought fit to patent the process of varnish manufacture adopted by him in its production.

SPIRO.

A CASE OF SHRIVELED VARNISH.

KEOKUK, IOWA, Nov. 13th.

EDITOR OF THE HUB—DEAR SIR: A very singular deviltry has occurred in our paint-shop during the past week; and I hasten to avail myself of the assistance of the editor of your paint-shop department. Here is the case:

A business wagon having considerable gold-leaf lettering, scrolling, etc., painted with care, and having had plenty of time between the coats, was in our varnish-room all ready for the finishing coat. All the circumstances seemed favorable. The weather was dry, the room properly heated; and while we can't pride ourselves much on ventilation, still, it was as good as the average. The varnish was the same that we have been using with success for eight years past.

Well, I applied the finishing coat of varnish. Up to the time of my leaving the shop, the job looked beautiful. It was perfect in every respect. On my return to the shop next morning, however, I found the main panel on the near side, and the top panel on the back side, all drawn up. It looked to me as if a wind had passed over the panel and ruffled it all up. All the remaining panels on the sides and back were

still in perfect condition. What, in your opinion, was the cause of the trouble?

I would add that I keep my varnish brushes in raw linseed oil, and am accustomed to wash them out in turpentine previous to using them. I would also add that this job was not near any window, where it could catch a draught; and I believe the temperature was pretty uniform throughout the night, at about say, 60 to 65°.

A prompt reply will oblige.

ANSWER.

The latter part of our correspondent's letter seems to suggest a satisfactory clue to the mystery.

We refer to the raw oil in which you keep your varnish-brushes. In our opinion, the probable cause of the trouble was that your brushes were not perfectly cleared from the oil of the keeper, which had, no doubt, been standing for some time, and had become more or less "fatty" and non-drying. We are all the more inclined to believe this to be the case, from the fact stated by you that the panels which you would be almost sure to commence on, namely: the main panel on the near side, and the top end panel, were the only ones which were affected. Please look into this, and let us know what you learn by further observation of the case.

We will only add here that varnish brushes should preferably be kept in the same material which they are used to apply. If you *will* keep them in raw oil, and we know some painters prefer to do so, then avoid washing them in turpentine, but scrape them thoroughly, and then wash them out in the varnish before applying.

W. B. L.

A CASE OF SEEDY VARNISH.

S. I., N. Y., Nov. 3d.

EDITOR OF THE HUB'S PAINT-SHOP—DEAR SIR: We were in a great hurry last month with a coupé promised to one of our best customers who had just returned from Europe; and we were very much annoyed by the finishing coat of varnish, which acted very queerly.

The morning after it was varnished, the entire surface was covered with fine specks, and looked as if it had been peppered with a sand blast. The varnish, also, had lost its luster. It was unfit to send away, and we had to let it stand for some days, and then rub it down as well as we could, and revarnish it.

We have used the same varnish for years, and never had any serious trouble with it before. We have every confidence in the varnish, and also in our painter. Please state what you think caused the trouble. D.

ANSWER.

Without knowing the location and surroundings of your shop, its conditions of heat and ventilation, and the state of your brushes, we would not undertake to assign the cause of the trouble named with any degree of certainty; but we mention below three principal causes which are liable to produce a seedy job. They are as follows:

1st. The first of these is "chilled" varnish, which has been kept in a cold place, or is applied in a dangerously low temperature, for instance at 50° Fah., or under.

2d. Leaving the floor too wet after washing it off preparatory for the process of varnishing.

3d. Keeping the brushes in raw oil, and not thoroughly cleansing them before applying the varnish coat.

Please decide for yourself which of the above fits your case.

We would add that, at this season of the year, before the winter weather has thoroughly settled, painters are too often led to take chances with the weather; and a sudden change of temperature, particularly a cold rain, may cause heaps of trouble in the varnish-room. It pays to keep a fire going pretty steadily after the first of November. Moreover, the room should be properly ventilated, in order to avoid the other horn of the dilemma—too great heat.

W. B. L.

A REPUTED CURE FOR CRACKS IN VARNISH.

STAYNER, ONT., Oct. 28th.

EDITOR OF THE HUB—DEAR SIR: I see in my *Hub* for September, page 405, that a cure for cracks in varnish is referred to. You will confer a favor if you will kindly obtain the particulars and communicate them to me, either by letter or through your correspondence department.

JOHN MATHERS & SON.

ANSWER.—For full particulars respecting the method referred to, our correspondent will please address the inventor, Mr. I. F. Ward, Perry N. Y. We have had no experience with it; and we must confess that we have little faith in the ability of any filler to produce the result which Mr. Ward claims, although he certainly speaks very confidently. L.

THE Czar was recently severely injured by being thrown from his sledge. It must have been an old sledge. We have known men to get badly "broke" by fooling with "old sledge."—*Norristown Herald*.



PLUMES AND SCREENS FOR RUSSIAN SLEIGHS.

GRAND RAPIDS, MICH., Nov. 3, 1884.

EDITOR OF THE HUB—DEAR SIR: Will you please tell me where I can find
 imes and screens for Russian sleighs?
 A. W.

ANSWER.—For full particulars, address Otto Wagner, No. 272 6th
 e., or E. Rattey, No. 46 W. 30th-st., New-York City, who are special-
 s in this line of work.

THE MIDDLE BOW OF THREE-BOW VICTORIA
TOPS.

EDITOR OF THE HUB—DEAR SIR: In setting three-bow tops on Victorias
 and Cabriolets, should the middle bow be contracted? Is it necessary to have
 plumb, or to divide the space between the first and third bows? G. H. S.

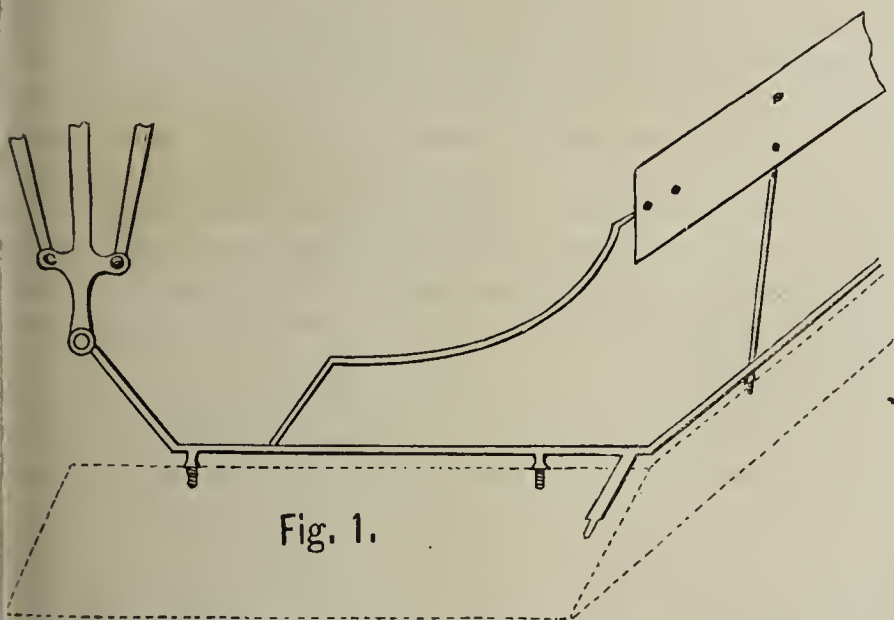
ANSWER.—The middle bow on a Victoria is not contracted. The cen-
 tral bow should be plumb. It will not make a good-looking top to have
 the bow incline to the front or back, and the defect will become still
 more conspicuous when the top becomes old and worn.

FOUR DESIGNS OF SHIFTING-RAILS.

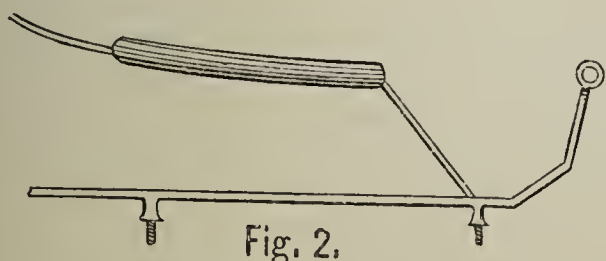
MANSFIELD, O., Nov. 1, 1884.

EDITOR OF THE HUB—DEAR SIR: In the April *Hub*, 1884, on page
 1, appeared the following: "I would like to suggest that you give a
 good article on shifting-rails,—not telling how to make a rail, but illus-
 trating and describing the different kinds adapted for different uses. I
 am sure it would be appreciated by those of your readers producing light
 work."

Now, Mr. Editor, I think the above a splendid suggestion. We are all
 interested to learn all we can how to make well-shaped tops, and to de-
 termine the proper sizes to best suit the jobs for which they are intended.
 Answering the suggestion of your correspondent, I herewith inclose four
 designs of shifting-rails, hoping that they may arouse others to give us
 their ideas.

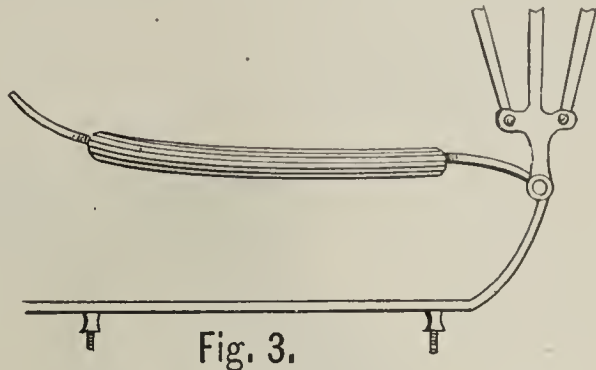


Design No. 1 is specially adapted for square-box, surrey and white-
 chapel buggies; designs Nos. 2 and 3, for extension-top phaetons, sur-
 rey wagons, phaetons, etc., and design No. 4, for both heavy or light
 work where shifting-rails are used.

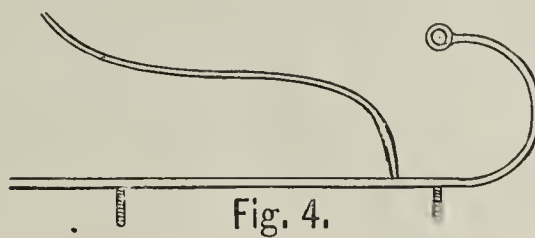


I will now briefly describe the first of these shifting-rails, and my
 remarks will apply generally to all the others. To obtain the place for
 the gooseneck, find the length of the top, and divide it by two; and then
 subtract the rake. Suppose the top is to be 44 in. in length; this

divided by 2 gives 22 in. Deduct the rake, which is 3 in., from 22, and
 this leaves 19 in. The gooseneck should in this case be placed 19 in.
 from a straight line from the back of the seat; or, for a 42 in. top, 18
 in.; for a 41 in. top, 17½ in.; for a 40 in. top, 17 in., etc.



Some builders prefer to make the front space on three-bow tops from
 1 to 1½ in. longer than the back space; and in that case the gooseneck
 is set back from the center to allow the middle bow to stand plumb; but
 in all other cases the gooseneck should set in the center of the top, so
 that the front and back bows will stand at the same angle.



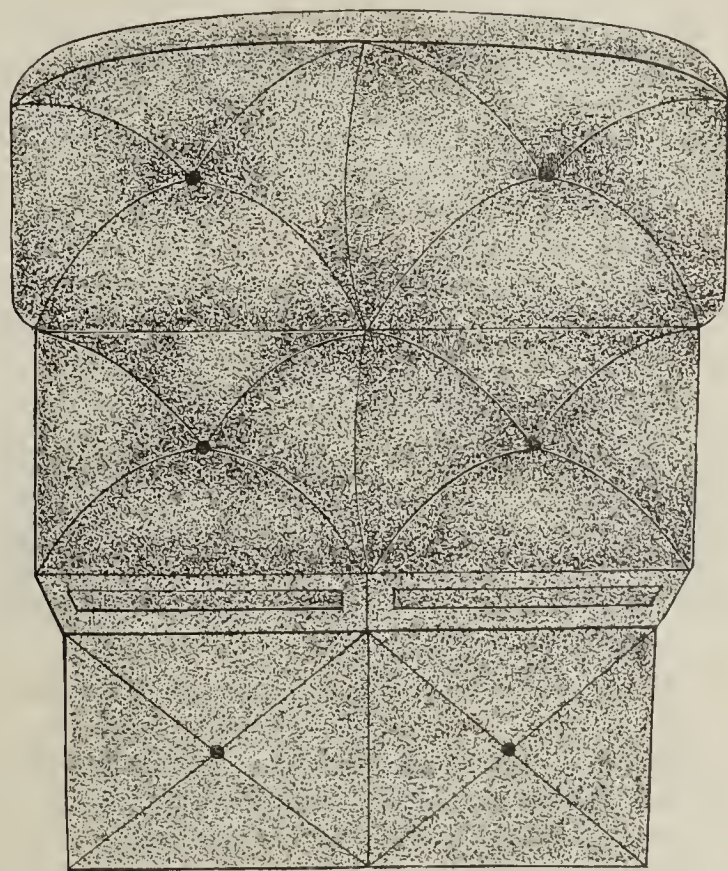
The above rules hold good for all styles of shifting-rails for buggies.
 For rules applicable to extension-tops, see my article in the December
Hub, 1880, page 428.

The lazy-back should not set vertical, but on a line with the back
 stays. This will allow the back to lie up close against the lazy-back.

Designs 2 and 3 have the arm-rails flattened out, with three holes
 drilled in, and a block of wood screwed fast for the trimmer to put the
 arm-pad on. These arm-pieces will not turn. C. G. Cook.

SIMPLE DESIGN FOR TRIMMING A BUGGY.

In this simple and inexpensive design, adapted for buggies and other
 light jobs, the back and cushion have a cord through the center, and
 each is made of two pieces of cloth. This, you see, is a good pattern for



working up odd pieces. The rest of the design is formed by stitching
 ⅛ inch from the edge of the cloth. Form a small cord, and draw in two
 large tufts. The fall is stitched to correspond with the back.

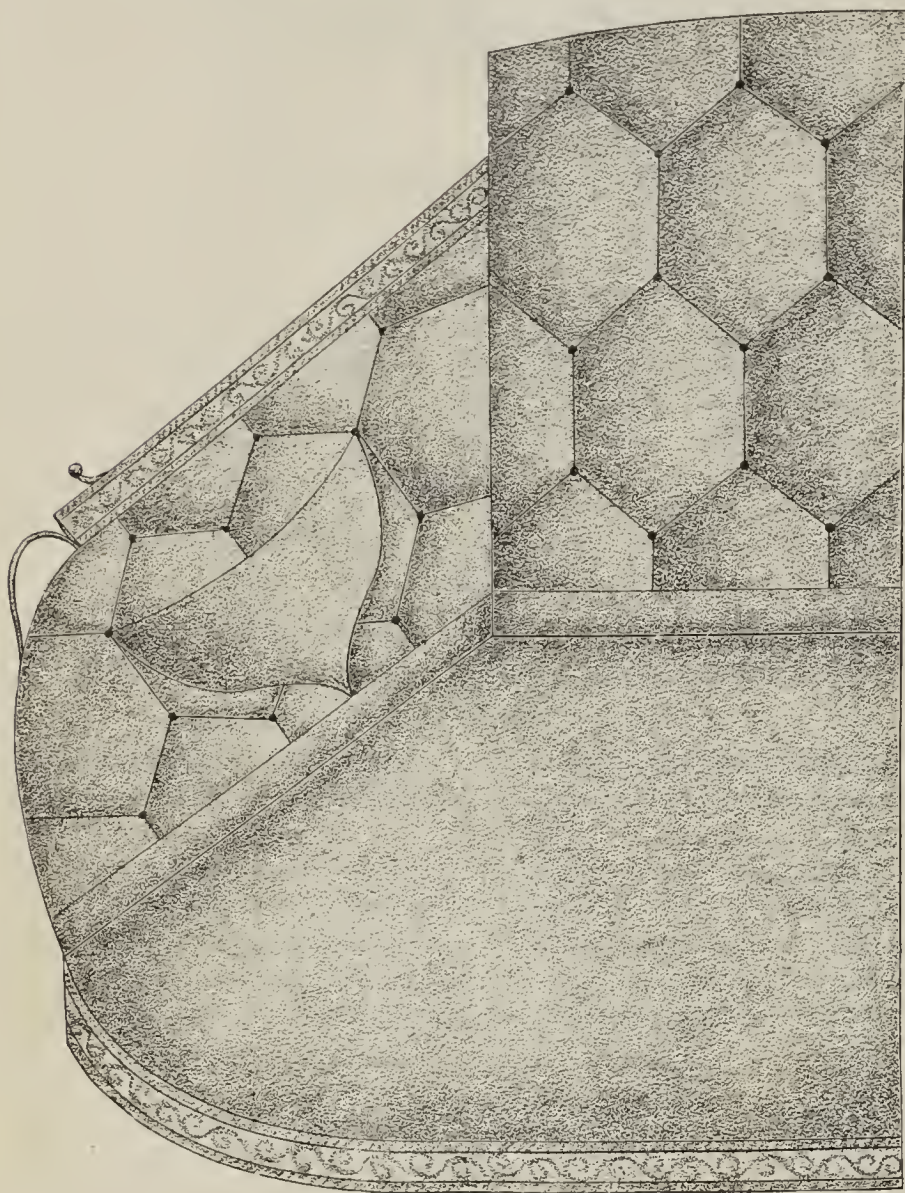
No further description seems necessary, as the trimmer will have no
 trouble in following the drawing. C. G. Cook.

PETTY TRADESMAN (reading his paper):—"Tut, tut! what foolish
 pride is creeping in among the lower classes! Here is a case of a girl
 disowned by her family because she married a coachman. And she was
 only a shop-girl serving customers at Macy's! Well, well! what is the
 world coming to?"—*The Century*.

TRIMMING DESIGN FOR CLOSE-TOP PHAETON.

I HEREWITH present a design of trimming well adapted to a large class of medium work, including close-top phaetons, cabriolets, victorias, etc.

By comparing this design with the two which I presented in the last number, pages 552 and 553, several noteworthy changes will be observed, including the plain cushion, and the differently shaped pocket. The figures introduced in the back and side also vary somewhat. With these



exceptions, however, the mode of making up this design is substantially the same as I then described with considerable detail; and the reader is therefore referred to that article for all necessary instructions.

I will only add the following few hints: Finish with broad-lace and patent-leather welts all around, the black leather forming an agreeable contrast with the material, which should be green goatskins. Use green carpet, with small figure, and for the quilted work use tufts in color to match the skins. This will give a rich and stylish appearance to the whole job.

W. H. E.



TRADE GOSSIP OF THE PAST MONTH.

WELL, we have seen exciting times since we read our November *Hubs*! We have passed through a political revolution. A new President-elect and a new administration are now before us; and, after more or less shock on the part of one-half of our citizens, both halves seem now to have accepted the situation with good grace, and to be gradually settling down to work again. Whatever our political opinions may have been on Nov. 1st, our obvious duty on Dec. 1st, as peace-loving citizens of a free land, is to promptly accept the will of the majority, and to ally ourselves, hand and heart, with the new order of things. Long live the President-elect!

* * *

ONE thought occupied the attention of the American people during the month of November: *Who is to be our next President?* The question was a momentous one; and, naturally enough, while that was still open, the trades and manufactures were largely left

to run themselves. They didn't succeed very well. Such, at least, was the case with the carriage trade, whose record for November of this year can be summed up with the single word: *Nil!*

* * *

THE Connecticut papers report the following peculiar election bet, made by two citizens of Norwich, in that State. If Cleveland were elected, William Hartley was to furnish a barouche drawn by a yoke of oxen, harnessed with Williamantic thread, to proceed over a line of march comprising the principal streets of the city. If Blaine won, then Frank S. Stuart was to pay for the same turnout. The principals in the wager, with two invited guests, are to occupy seats in the barouche. When this political circus is to occur, is not definitely stated.

* * *

THE case of Brewster & Co. against Rufus Hatch, involving the vexed question of the feeing of coachmen, is still before the New York courts; and another decision, adverse to the plaintiffs, is recorded in this number of *The Hub*, page 636, which well deserves careful reading. No lawsuit of equal importance to the carriage trade ever before entered the courts, and its progress is evidently watched with deep interest. We understand that no further action is likely to occur until the January term.

* * *

THE suit of Miss Rebecca B. Martin against William F. Garrison for \$5,000 damages, was tried in the Brooklyn City Court, N. Y., on Nov. 10th. It appears that, on the afternoon of May 19th, the plaintiff and a lady friend were driving to Prospect Park in a Village-cart, when the defendant, who was driving rapidly in a light wagon, struck the cart and threw the ladies into the street. The plaintiff was severely bruised and her eye was badly cut. She claims that the accident was the result of carelessness on the part of the defendant. The case is still in court.

* * *

AFTER a brief and promising existence of about a year, the New-York Catering Company, whose Delivery Wagon was represented in the April *Hub*, 1884, has been compelled to close its kitchens. Last spring it was in its heyday, having a greater business than it could conveniently attend to. Its customers were more than satisfied with the quality and quantity of its purveying, and it was believed that this novel plan of furnishing wholesome and economical food, well cooked and neatly served, would be equally a source of profit to its originators and of convenience to those who availed themselves of its advantages. But in the early summer there was a hegira of the company's patrons, and those who remained in town found a gradual decline in the quality of the meals and in the service generally. The natural result was a withdrawal of custom, and the company, not being provided with sufficient capital to carry it through a period of dullness, has come to financial grief. It has, however, demonstrated that its scheme, under fairly good management, would meet with success. We may, therefore, regard the culinary fires as being only temporarily quenched, and expect that they will soon blaze again under the breath of another company or companies, having lungs strong enough to fan them.

* * *

THE *Southern Coach-Maker*, our new and energetic contemporary, of Nashville, Tenn., makes public, in its November issue, quite a full report of the St. Louis convention, accompanied by many interesting editorial notes and comments. In one of the latter it expresses the following thought: "We greatly regret the small attendance from the South. We fear our portion of the craft do not appreciate as they ought the privilege of being allowed to attend these conventions." Its reference to Gen. Sherman is particularly happy, by reason both of its source and its evident heartiness. It says: "There were a number of good speeches, prominent among which was that of the old warrior, Wm. Tecumseh Sherman, who has a voice and a heart in peace, as well as an arm and a head in war." Referring to the toast offered to our Philadelphia contemporary, it adds: "A very clever little piece of brotherly regard occurred at the banquet. President McLearn offered as a closing toast: '*The Carriage Monthly Daily*,' which was most powerfully and feelingly responded to by the editor of *The Hub*." We don't know about the "powerfully,"—but "feelingly," yes; and in response to an implied mark of interrogation in an editorial wherein the *Blacksmith and Wheelwright* somewhat humorously alludes to the same incident, we take pleasure in repeating, now, that we consider Messrs. Ware Brothers deserving of the

ghest praise for the pluck with which they undertook a most difficult task in journalism, and the success with which they accomplished it.

* * *

MR. WM. THOMPSON CASSON'S serial essay on "The Manufacture of Carriage Wheels" continues to form an attractive feature in the London *Coach-Builders' Art Journal*. The installment appearing in the November issue of that periodical is devoted to the machinery and tools employed by English wheel-makers.

* * *

WE wish we knew that every reader of *The Hub* was also a constant reader of the editorials appearing each month in *The Century*, under the heading of "Topics of the Time." That one entitled "Economic Mistakes of the Poor," in the November number, is a gem in itself, and well worth a year's subscription to any workman who will duly ponder upon and utilize its wise suggestions.

* * *

ONCE more the Queen of the Turf has beaten the record! The following inscription, copied from the commemorative trophy just completed by Tiffany & Co., of this city, briefly tells the story:

WOODBURN FARM CUP.

AWARDED THROUGH THE KENTUCKY TROTTING
HORSE BREEDERS' ASSOCIATION TO

MAUD S.,

Owned by Robert Bonner, to commemorate her great
achievement of trotting on the Lexington Fair
Grounds, Nov. 11, 1884, against her
own record of 2.09¾, and
making a record of
2.09¼.

* * *

DULL seasons are not altogether to be regretted—when they don't call too often or stop too long. An occasional lull in business, like an occasional holiday, may prove beneficial to the manufacturer, by shaking him up and stimulating him to renewed energy and originality. In spite of Mr. Eccles's ingenious observation recorded on page 639, temporary necessity, wisely administered, still deserves the reputation of being the "mother of invention," as is shown by the frequency with which we have had occasion to comment on the fact that noteworthy new styles in the line of vehicles have most often been developed during periods of business stagnation. In this view of the case we would seem justified in expecting something astonishingly novel this season, nor have we been disappointed, for the "Sedan Cab" just brought out by Messrs. Chauncey Thomas & Co., of Boston, Mass., appears to us to fulfill all the conditions of a new and valuable creation, being novel in form and detail, and specially adapted to the needs of the present day. These facts we hope to clearly show in our next number, which will contain a careful drawing of the new cab, accompanied by a detailed description of its characteristic features. It must suffice for the present to say that its outlines closely follow those of the old Sedan Chair, which, in its palmy days, was a model of grace. It is, in fact, a veritable Sedan Chair mounted on two wheels, with a driver's box in front, and the entrance transferred to the rear. Many other minor features are introduced, including the seating arrangements and mode of balancing the body to the requirements of varying loads, but its typical character as a wheeled Sedan Chair still remains. Its title is consequently a happy hit, being short, easily remembered, and strictly descriptive.

* * *

ONE of the most encouraging signs of the times is the present increased demand for new and improved designs of vehicles, which, during the past month, has kept our draftsman, Mr. Kehrl, unusually busy, and has added very satisfactorily to our sales of fashion-plates and colored engraving of recent date. To answer this demand with less expense to our friends, we are now engaged in putting an attractive collection of our new stock of such designs, which will be ready for sale early in December, and will, we think, prove highly serviceable to the trade. It will contain about two hundred and fifty current styles of carriages, both light and heavy, together with business vehicles and sleighs, drawn in perspective to the scale of either one-half or three-quarter inch, and twelve of the plates are printed in colors. The price of this new publication, which will be found particularly valuable for study during the winter months, is \$2.00, including prepaid postage, or less than one cent for each design. After the builder has already realized his dividend on the investment by noting the characteristics of these fashion plates, they can then be turned to further account by ex-

hibiting them to customers, who often need help of this kind in order to define the requirements which they have in mind, but are unable to clearly express. May we have the pleasure of supplying you with a copy?

* * *

IN compliance with the request of the School Committee in New-York, Mr. Henry Julian, of Bolton, Eng., has forwarded in pamphlet form a second edition of his admirable lecture on "Art Applied to Coach-Building," recently delivered by him in the New Town Hall, Westminster, and already reviewed in our July and August numbers. It bears upon the title-page the following additional inscription: "Second Edition. Printed expressly for the use of Pupils of the Technical School for Carriage Draftsmen and Mechanics, New-York, by request of the Committee of the Carriage-Builders' National Association on Technical Education." One of these has been presented to each member of the regular evening and corresponding classes. The expense has been paid out of the school fund, and copies will be supplied at ten cents each, postpaid, to any member of the Association who will apply to the instructor or secretary.

* * *

THE November number of the London *Carriage Builders' Gazette* contains a report of the highly instructive lecture recently delivered by Mr. Geo. N. Hooper, President of the Institute of British Carriage Manufacturers, on "The Methods and Results of Technical Teaching as applied to the British Carriage Industry." We wish every American carriage-builder could read this lecture, and we would gladly publish it in full if our space allowed, but, with the introductory remarks and succeeding debate accompanying, it occupies seventeen closely-printed columns in the journal referred to. Mr. Hooper's definition of what constitutes a fully competent carriage-builder is admirable; but how few, alas! would be able to hold their places if required to answer all the conditions he lays down! By submitting the trade to a competitive examination based on these requisites, we fear that the number of successful candidates for continuance of business during the year 1885 would be painfully few. Here is what Mr. Hooper says on this subject: "A thoroughly competent carriage-builder must be a competent draftsman; he must be well trained in free-hand drawing, advanced as well as elementary; he should also have a good general knowledge of geometry; he should also have a knowledge of mechanical laws, as well as theoretical and applied mechanics; he should also know the properties of the materials used, and be able to judge of their quality; and he should know how best to convert materials so as to avoid waste, for many of the materials used in the carriage industry are choice and costly. He should have a knowledge of the laws of color, and their proper arrangement as regards harmony and contrast. His knowledge of carriage drawing should be such, that, by a combination of skill in free-hand and mechanical drawing, his work may be designed with elegance, and so constructed that, as a piece of mechanism, it shall not tear itself to pieces."

* * *

No living carriage-builder has had longer or more varied experience in technical instruction as applied to the carriage trade than Mr. Hooper, and his remarks on this subject therefore deserve special note. He says: "A great deal may be learned in a good and well-ordered manufactory, but generally it is not, except under the following conditions: First, a sound preliminary education; second, some one to teach; and third, a willing student. The fundamental object of a factory is to make a living, from the employer down to the youngest apprentice or errand boy. Thus matters and methods are so arranged as to produce the goods at a price, and at a profit. Time is money to all engaged in the work. The employer has seldom time at his disposal to teach the boys and young men. The skilled artisans under whom the boys are placed have their quantity of work to turn out each day, and the teaching of the boys is not to attain the utmost skill but the most rapid money return. Under a very relaxed system of apprenticeship, industry can hardly be enforced, as in the olden time, by an appeal to a magistrate, so the technical school becomes almost a necessity in our times, to meet the keen and fierce competition that we have to meet with; and if necessary for apprentices and young men, it is ten times more necessary for foremen and employers, who have to direct the work." Surely, no more telling plea for technical instruction was ever presented than in the above brief sentence!

THE CASE OF BREWSTER & CO. vs. HATCH.

FULL REPORT OF THE PRESENT SITUATION.

So many inquiries have recently been addressed to us respecting late developments of this case, which has now become quite an American *cause celebre*, that we have determined to give our readers a full account of its present condition and the attitude of the two parties in the suit.

This action, brought by Brewster & Co., of Broome-st., New-York, against Rufus Hatch, to recover a balance due for goods sold and work and materials furnished, has been tried three times.

On the first two trials, a verdict was given for the plaintiffs, affirmed on appeal by the General Term of the City Court, but reversed on appeal, and a new trial ordered by the General Term of the Court of Common Pleas, the Court of Appeals for the City Court.

On the third trial, which came on before Mr. Justice Hawes and a jury in the City Court on the 12th of February, 1884, the defendant first set up as a defense to the action that the plaintiffs had been in the habit of giving gratuities to defendant's coachman; and claimed that this custom was contrary to public policy, rendered the contract void, and barred recovery of the claim.

The evidence, in brief, was that gratuities had in fact been given, but that they were not given for the purpose of inducing the defendant's coachman to bring work to the plaintiffs' shop. It was admitted by counsel for both plaintiffs and defendant that there was no question of fact for the jury to pass upon, and the Judge was requested to decide as a matter of law whether the giving of the gratuities was contrary to public policy and consequently barred recovery of the claim. Mr. Justice Hawes decided that such was the case, and directed the jury to find a verdict for the defendant, which they accordingly did. A motion for a new trial was argued on February 23d, 1884, and subsequently, after deliberation, denied.

From the judgment in favor of defendant, and the order of Justice Hawes denying a new trial, an appeal was taken to the General Term of the City Court, and came on to be heard on the 3d day of October, 1884, before Justices Nehrbus, Browne and Hyatt. Brewster & Co. were represented by Judge William H. Arnoux and Mr. Austin Huntington as counsel; and Mr. Hatch by Messrs. Robert Sewell and A. D. Pape. The opinion of the Court by Mr. Justice Nehrbus, filed October 24th, affirming the judgment and order appealed from, is of such general interest to the carriage trade that we present it in full below. It reads as follows:

* * *

THE OPINION OF JUDGE NEHRBAS.

THIS is an action for \$445.42 upon an account for goods sold and delivered, work, labor and services rendered, and materials furnished.

There seems to be no denial contained in the answer, but simply a controversy of the value of the goods sold and work performed. This allegation put plaintiffs to their proof of value. In lieu of this, the plaintiffs relied upon the correspondence had between the parties.

On August 8, 1877, the plaintiffs' then attorney wrote the defendant that a claim for \$598.89 (including interest) against the defendant had been placed in his hands for collection. On August 10th the defendant replied directly to plaintiffs, acknowledging the receipt of their attorney's letter, and stating that he presumed the claim was for repairs and storage on carriages and sleighs, and his inability to pay at that time. Three days thereafter plaintiffs informed the defendant that they had waited nearly three years, and offered to deduct \$145.42—making the claim \$400.00 net—waiving all interest if paid at once. The defendant, on August 18th, replied, reiterating his inability to pay the amount of the account immediately, and said: "But I will pay it just as soon as possible." This correspondence makes out a *prima facie* case for the plaintiffs for \$445.42 and interest. There is no evidence whatever as to the particular items which make up this account. The claim and proof are directed to an amount in its entirety.

The defense relied upon at the last trial was, that plaintiffs occasionally gave defendant's coachman presents of money, and that their so doing precluded a recovery on grounds of public policy. To prove this defense, a portion of the testimony of Henry Brewster, one of the plaintiffs, given upon a former trial, was read in evidence by the defendant. In answer to the question: "There has been something said here about your giving the coachman here a gratuity; state what there is about that?" Mr. Brewster answered:

"In regard to repairs, it is customary on the 1st of January to make the coachman a little present; sometimes it is one dollar; sometimes two or three, and we have sometimes given more—five or six dollars, and I don't say but we may have given more than that; always give them, if they do not come for it we send it; it is a custom imported from the old country.

Q. You did pay this man of Mr. Hatch's—were in the habit of paying this man?

A. If we did not, it would be the first case.

Q. What was the object of paying the money?

A. It is a custom imported from the old country.

Q. We do not want the customs of the old country.

A. Well, I could answer your question by saying something else.

Q. I would rather you would not; give me the reason.

A. Well, that is one reason; another, that it induces a man to feel more pride in his carriage; he has to treat his friends; he has treat money; it is a credit to us and a credit to his employer both.

Q. Is it not to induce him to bring the work to your shop, and not somewhere else?

A. It is not; if a man should ask for it I would kick him into the street.

The defendant's coachman testified that he received money from the plaintiffs at different times, but at no particular season of the year. He was paid two or three dollars at a time. He was in the habit, when he was coachman for Mr. Hatch, of taking the carriages for repairs to Brewster's, without saying anything to Mr. Hatch about it; he had orders whenever anything was out of order, to take it to Brewster and have it repaired.

Upon this evidence the defendant's counsel moved to dismiss, on the ground that "this case develops a violation of public policy, which exonerates Mr. Hatch from liability to these plaintiffs, because they bribed his servant into gross delinquencies and dereliction of duty." A suggestion from the Court that the evidence had better be submitted to the jury for their determination was strenuously opposed by the counsel for the plaintiffs; and counsel for both parties finally consented that the question should be passed upon by the Court; and it was stipulated that, as to this motion to dismiss, there was no question of fact involved. The motion was thereupon granted by the Court, and the jury formally directed to find a verdict for the defendant upon the grounds stated.

At a former General Term of this Court, upon an appeal from a judgment entered after a second trial of this cause, the Court expressed its opinion that the testimony brought out on that trial (which, as far as it goes, is the same as this) precluded a recovery as being against public policy. But, inasmuch as the facts thus elicited had not been pleaded as a defense, the judgment, which was in plaintiffs' favor, was affirmed. The answer has since been amended, setting up that defense, so that the question is now distinctly presented for our determination.

Although the views expressed on the subject by the former General Term may be merely obiter, they seem to state the law applicable to the case quite forcibly and tersely, and we fully concur in the opinion handed down by the Court, so far as it relates to this defense. When presents of money are made to servants by people who do business through them with their masters, the instinctive and irresistible conclusion follows, that it is wrong—morally and legally improper—and when business is conducted with the servant without the knowledge of the master, the impropriety assumes a still more serious character. Can such gifts be considered as mere matters of charity? It is to be presumed that the servant is sufficiently paid for his services by his employer. Why, then, was the coachman in this case subsidized? The plaintiffs say:

"It is a custom imported from the old country; it induces a man to feel more pride in his carriages; he has to treat his friends; he has treat money; it is a credit to us and his employer both."

These reasons are certainly very unsatisfactory, to say the least. This custom, if such it be, cannot be upheld by courts of justice. It is subversive of all principles of good faith and fair dealing between man and man. It tends to corrupt the morals of employes, and make them unfaithful to those who are entitled to their disinterested fidelity. Such practices are certainly not consonant with honorable business principles, and they who indulge in them must suffer the consequences, however onerous they may appear to be. (See *Smith vs. City of Albany*, 61 N. Y., 444).

But it is suggested that, while the defense may be good as to the repairs and storage charged, it is not valid so far as the fifty dollars which remains unpaid on the original purchase price of the landaulet is concerned. This ground is untenable for the reason that there is no proof whatsoever in the case as to the different amounts charged. The evidence has reference to but one item in the bulk, to wit, \$445.42. The correspondence between the parties occurred some time before any suit was brought, and before the bill of particulars was served. In our opinion, the bill of particulars cannot therefore be inquired into for the items of the account. It was not proved in any wise, and, for the purposes of this appeal, the claim proved must be considered as indivisible. If the plaintiffs have chosen to rely upon admissions to prove their case, they must take them as they are. All questions of fact were taken from the jury by express stipulation, and we can only consider the one item proved. It thus follows that if any part of plaintiffs' demand is tainted with illegality, the whole of it must fall, since a basis of discrimination is wanting.

We are therefore of opinion that the judgment and order appealed from should be affirmed. Judgment and order affirmed, with costs.

* * *

It should be added that the above decision by no means settles the case, for we understand that an appeal to the General Term of the Court of Common Pleas is under way, and that it will probably be argued in January next. That Court may reverse the decision of the Court below, in which case the action would have to be tried over again for the fourth time. Whatever may happen, the carriage trade of this country will watch the course of events with profound interest, for this case may be looked upon as not alone a trial of Brewster & Co.'s methods, but of a common and long-established custom of the trade, both in this country and abroad.

"PHILOSOPHY would seem to be the science of making abstruse things plain: but many of our cultivated moderns have reversed the order, and are satisfied if they can make plain things abstruse."—*The Century*.

ARE POOR ROADS GOOD FRIENDS?

(See previous article on same subject, in our October number, page 486.)

OUR "Critics' Corner" month before last included an extract from the *Western Carriage, Wagon and Materials Journal*, of Chicago, claiming that poor roads were good friends to carriage-makers. To this, we responded briefly in the negative, but prefaced our comments with the remark that "we imagine our Chicago contemporary was 'funning.'" To our surprise we now learn that he wasn't, for in his November issue he reiterates the statement, and defines his reasons. Behold, below, his statement and his reasons:

"*The Hub* seems to think that bad roads are not so beneficial to carriage and wagon-builders as good roads. That good roads encourage riding is to be admitted. But in this country, outside of large, old cities, there are not uniformly good streets and roads; consequently, those who ride must take the bad with the good, and this journal contends that bad streets and roads knock in pieces carriages and wagons quicker than good streets and roads, and therefore that bad streets and roads are more beneficial to carriage and wagon-builders than good ones.

The Mayor of Chicago, in his after-dinner speech at the carriage-builders' convention three years ago, jocosely said that the streets of Chicago were the carriage-builders' best friends, because they would break down more vehicles than the streets in any other city in the Union. It is true that good streets and roads are commendable, and, where they exist, much carriage-riding is enjoyed, and many vehicles are bought and used; but let those streets and roads become out of repair—uneven—bad, and they will knock and shake and wrench and break vehicles worse in one day than good roads would do the samemischief in a month. *Ergo*: if bad streets and roads wear out and thereby increase the sales of vehicles, are they not more beneficial than good streets and roads to the vehicle builder?

We suppose *The Hub* will hold that where bad roads exist, less vehicles will be sold. In this new country vehicles are absolutely necessary; they must be bought and utilized; the people cannot stop for streets and roads to be perfection. They must move on, roads or no roads, and, in some cases, where the bottoms have dropped out. Bad roads and bad weather, we reiterate, are foes to vehicles, and friends to the builders, so far as they help destroy the first and make business for the latter."—*Western Carriage, Wagon and Materials Journal*.

We have little patience with sophistry of this kind, and we are till unwilling to believe that the editor of our contemporary really means what his words intimate; but, for fear that his unfounded claim should be accepted by any one, we now sound another warning, and challenge his reiterated statement that "bad roads are friends to the builders."

To argue so simple a proposition seems unnecessary, for the youngest school-boy son of a carriage-builder will understand, without the need of logic, that we have only to let the roads of any locality be bad enough, and there will be no demand whatsoever for pleasure carriages. In some parts of the world the roads are so bad that they are unworthy of the name, and the condition of the carriage business in such countries is not difficult to imagine. The following extract from the recent reply by United States Consul Robinson, of Tamatave, Madagascar, to the Secretary of the Carriage Builders' National Association, in response to a request for particulars regarding the styles of wheeled vehicles used in his vicinity, sufficiently illustrates this phase of the case. He says: "When I tell you that there is not, and never has been, a road in this country, *i. e.*, a road that a wheel carriage could travel, nor a ridge that such a vehicle could cross, you will see that all your questions are responded to." We should say so!

On the other hand we have only to make a list of the cities of the world where the streets are best cared for—Paris and London, for instance,—and there we are certain to find also the best and largest proportionate number of fine pleasure carriages in constant use.

What would become of the Brewsters and their companions in New-York, without Central Park, Fifth-avenue, and the new Boulevards? In absence of the driving facilities which these afford, does any one imagine that a New-York Coaching Club would or could exist? What would become of the Rogerses in Philadelphia, without Fairmount Park and its approaches; or the Thomases and Sargents in aristocratic Boston, without Boston's well-forested environs? Echo answers with an interrogation mark!

Is it possible that any one can doubt the truth of the proposition that constant usage and ordinary wear and tear must in the end prove most profitable to the carriage-builder? We think not!

Is it possible that any reasonable observer can question for a moment the obvious fact that these are primary conditions governing the demand for pleasure carriages, and that, as soon as the standard of road-making is raised or lowered in any locality, the quality and prosperity of the leading builders of pleasure carriages will promptly respond to the influence, and rise or fall therewith? We think not! And, going a step further, surely every constant reader of *The Hub* knows that the success of the leaders means success to the rank and file! If they do not, the fault is not ours!

In the earlier volumes of *The Hub* we gave considerable attention to the subject of improved roads, and prominently called attention to the fact that it was the obvious duty of every carriage-builder to exert his influence to the utmost extent to secure better roads and streets, and further extension of park privileges, as a direct means of elevating the standard of American pleasure carriages, and increasing a demand for them. The principles then inculcated have the same force to-day. We then showed that *increased facilities for travel were certain to beget a proportionate increase of travel*. This rule applies equally to all means of conveyance, whether by rail or roadway. We showed that good roads insured a demand for good wheeled vehicles, while bad roads prohibited them. Of course, a certain amount of necessary travel over bad roads will be unavoidable in all inhabited districts; but where only passable roadways are the rule, this will be confined to business conveyances; and the roads may become so excessively poor as to be practicably impassable for all wheeled vehicles, as in the instance described by our Consul in Madagascar. On the other hand, just in proportion as the safety and comfort of our roadways are increased, and the opportunities for enjoyment by driving developed, so will the demand for pleasure vehicles increase. From these preliminaries, it may be laid down as a general law that very bad roads mean little or no work for the carriage-builder; that bad roads limit the demand to the supply of actual necessities; that the establishment of good roads invariably ushers in the period when fine pleasure carriages will be called for; and that *very* good roads, kept in constant repair, assure a constant and growing demand for the finest grades of pleasure vehicles, whose construction and ordinary repair will afford a regular run of custom, of the most remunerative character, to a certain number of builders.

The above law is unquestionable, and any statement to the contrary deserves to be promptly challenged. We challenge the statement of our Chicago contemporary as unfounded; and we earnestly charge the carriage trade of this country to bear in constant remembrance the fact that good roads, in constant good repair, are their best of friends, to be supported on all occasions and by every legitimate means within their influence, direct or indirect.

WHAT IS A BERLINETTE?

—, MASS., Oct. 10, 1884.

DEAR HUB: Will you kindly inform me if there is a carriage known as a Berlinette? If not, please say whether that would be an appropriate name to apply to a light six-passenger extension-top cabriolet. I have a new carriage in which I move the front seat forward four inches, and at the same time throw up a child's-seat behind it, thus making a very desirable family carriage, and I want a name for it. I know of no better authority than yourself to ask, which is my excuse for troubling you. Very truly yours, BERLINETTE.

ANSWER.—(1). We do not recall having heard this term applied to a vehicle, though it is not at all unlikely that some builder has previously used it, for it is a derivative that would naturally suggest itself to any builder of Berlins.

(2). Diminutives formed by the addition of the letters *et*, masculine form, or *ette*, feminine (the former being preferable), are common and entirely proper. The most familiar example of the former is the word *pocket*, which simply means *a little pock or bag*.

Berlinette, or preferably Berlinet, is a perfectly justifiable word, so long as it is correctly applied to a *small or reduced Berlin*. Whether your new vehicle is such or not you must decide after comparing its characteristic features with those of the true Berlin, as defined in the "Hub Dictionary of Carriage Terms."

THE jin-riki-shiya, or miniature two-wheeled cabriolet, drawn by a coolie in the shafts, came to China in recent years from Japan, where its Sinico-Japanese name—literally man-power wheels—originated. The labor is terribly severe on the heart and lungs, and the average duration of the lives of this particular variety of the cabman is not more than five years. They will trot about forty miles a day over even ground.—*Ex.*

CORRESPONDING CLASSES OF THE TECHNICAL SCHOOL.

THE Corresponding Classes connected with the Technical School in this city are now in full running order, and all that seems lacking is an adequate number of pupils. Here is the best kind of an opportunity for any carriage apprentice or mechanic to learn how to draw. The expense is nominal, barely covering postage charges. Every carriage factory of any pretensions ought now to have its local class, in regular communication with the parent school. Is there such a class in your shop? No? Then please do what you can to help form one. You will certainly never regret any exertion you may make in this direction, and a word of approval from the boss will usually prove sufficient without the need of any special effort. There are at present two corresponding classes, namely, the "Primary Class," confined to free-hand and mechanical drafting, and the "Advanced Class," now engaged in unraveling the mysteries of the "French Rule" of carriage body-making.

THE OSGOOD WOOD-FILLER FRAUD.

BULLETIN NO. VII (and, we hope, the last one!)

"OUR friend, the enemy" (as the *New-York Tribune* might put it), namely: the Osgood Wood-Filler Swindler, seems at last to have suspended operations, and we hope permanently. It is much better so, both for his prospective victims in the carriage trade and for his own precious person. The hazard of his business operations increased just in proportion as the profit decreased; and, judging from the statement contained in the following letter from a Long Island correspondent, he has had the wit to appreciate this fact and to be governed by it:

EAST MORICHES, SUFFOLK CO., N. Y., Oct. 21st, 1884.

EDITOR OF THE HUB—DEAR SIR: The Osgood Wood-Filler Fraud was in my shop last Wednesday. I knew him as soon as he made his business known, from the description I had read of him in *The Hub*. He would not sell me the receipt when he found out that I knew he was a fraud, but owned up that he was.

He told me he was about to give up the business, as he had canvassed every State in the Union, and had made a great deal of money out of it. He said *The Hub* was making it pretty hot for him, and his only chances now were in small shops where they did not take *The Hub*.

I only regret now that I had not telegraphed to you immediately, but I did not read your advice on the subject until afterward.

He succeeded the same day in selling his receipt to a wagon-maker in Center Moriches for \$6, so I afterwards heard.

Yours respectfully,

GEO. H. BAKER,
Carriage and Wagon-maker.

* * *

It may be well to place on record the following additional letters from Long Island, left over from our last month's bulletin, as a memorandum of prospective witnesses who might be able to offer valuable evidence in case the gentleman should forget his good intentions and make a place for himself in the prisoner's box, where he rightfully belongs:

BABYLON, L. I., N. Y., Sept. 24, 1884.

EDITOR OF THE HUB—DEAR SIR: I received your letter to-day, and was surprised at its contents. I did purchase a shop-right of the so-called swindler. I mistrusted him when I did so, but was induced at last by his showing numerous papers from parties he claimed he had sold to, and parties whom I knew. On these grounds I was at last induced to purchase. I paid him \$3 for my shop-right.

Yours truly,

G. W. HECKERT,
Carriage-maker.

BABYLON, L. I., N. Y., Sept. 24, 1884.

EDITOR OF THE HUB—DEAR SIR: Yours is at hand, inquiring in regard to the "Osgood Filler Man." I did not buy the receipt of him or sign any paper. If he has one bearing my name it is a forgery. He called on me, but I told him I was not in the habit of buying receipts. I have learned since that he did sell the receipt to Mr. G. W. Heckert of this town. Show the rascal up!

F. S. HOLDRIDGE,
Carriage-Maker.

BAY SHORE, L. I., N. Y., Sept. 30, 1884.

MR. EDITOR—SIR: There was a man called at my shop, representing a wood-filler, and my son told him then that he was a humbug. He said he was the first man that ever told him that, and declared that he was a legal agent hired by the company.

E. B. SMITH & SON,
Carriage-makers.

* * *

The success with which this ingenious rascal has so long kept his feet out of the numerous traps set for him would surprise us more if we had not previously witnessed the nine-year career of his illustrious predecessor, Lazier. Let us trust that we have now heard the last of him, and let us not soon forget the lesson which he has brought home to the trade, namely: to have no money transactions with strangers.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING OCTOBER, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between Oct. 7th and 28th in the current year:

OCTOBER 7th, 1884.

Carriage Axle.....	E. Blount.....	Smith's Mills, S. C.
Axle Skein.....	E. N. Hatcher, ¹	Columbus, O.
Buggy Shifting-rail.....	H. B. Crandall, ²	Homer, N. Y.
Wagon End-gate.....	C. P. Krenson.....	Munster, Ill.
Fifth-wheel.....	H. B. Yaran, ³	Crawfordsville, Ind.
Vehicle Hold-back.....	H. H. Baker.....	Syracuse, N. Y.
Vehicle Hub.....	K. H. Elliott.....	Burlington, Vt.
Thill-coupling.....	R. B. Ayers.....	St. Louis, Mo.
".....	A. B. Perine.....	Topeka, Kan.
".....	E. Yeiser, ⁴	Newmanstown, Pa.
Vehicle Top-prop.....	K. K. Parker.....	Circleville, O.
Two-wheeled Vehicle.....	S. P. Southard, ⁵	Geneva, N. Y.
Lumber Wagon.....	R. M. Williamson, ⁶	Chicago, Ill.

OCTOBER 14th, 1884.

Vehicle Axle.....	P. H. McNamara.....	Taunton, Mass.
Draft Mechanism for Vehicles..	G. H. Chappell.....	Huron, Dak.
Fifth-wheel.....	{ S. J. McDonald and C. W. Schaefer, ⁷	Galatin, Mo.
Carriage Shaft-Support.....	C. F. Randall.....	So. Abington, Mass.
Sleigh.....	T. Scott, ⁸	St. Paul, Minn.
Sleigh Knee.....	J. Mallon, ⁹	Houghton, Mich.
Vehicle Spring.....	S. W. Ludlow.....	Cincinnati, O.
".....	W. H. Sholl.....	Hobart, Ind.
Wagon Front-gear.....	G. T. Wilson, ¹⁰	Watertown, N. Y.
Wheel.....	S. T. Williams, ¹¹	Red Bank, N. J.
Device for Truening Wheels....	E. F. Maul.....	Bridgeton, N. J.

OCTOBER 21st, 1884.

Vehicle Axle.....	B. F. Horton.....	Ithaca, N. Y.
Carriage-lug.....	B. B. Hill.....	Lowell, Mass.
Carriage Top.....	B. Simmons, ¹²	Sandy Creek, N. Y.
Carriage Top-prop.....	C. D. Thatcher, ¹³	Columbus, O.
End-gate for Covered Wagons..	W. Howard, ¹⁴	Worcester, Mass.
Fifth-wheel.....	J. H. Robinson, ¹⁵	Fremont, O.
Hub-attaching Device.....	{ T. J. Searls and A. Harrington,	Auburn, N. Y.
Wagon Shaft-support.....	H. P. Fike.....	Chili, Ind.
Thill-coupler.....	J. Herron.....	Olney, Ill.
Vehicle Spring.....	C. A. Behlen, ¹⁶	Cincinnati, O.
".....	{ P. E. Denise and J. W. Bender,	Greenville, O.
".....	L. Pentz.....	Canton, O.
Wagon and Lifting Jack.....	R. Netzly.....	Naperville, Ill.
Wagon Running-gear.....	J. Moses.....	Lapeer, Mich.
".....	".....	".....
Wagon-box Straps.....	{ D. H. Finch and W. H. Nattrass,	Aurelia, Ind.
Dumping Wagon.....	H. Hild.....	Britt, Iowa.
Wheel.....	P. H. Cummins.....	Amsterdam, N. Y.
Whiffletree.....	M. F. Wood.....	Parker, Ind.
Whiffletree-hook.....	I. Kohn.....	New-York City.

OCTOBER 28th, 1884.

Carriage Axle.....	J. Dahn.....	E. Toledo, O.
Draft-evener for Wagons.....	F. Brechting.....	Grand Rapids, Mich.
Wagon End-gate.....	G. N. Bacon.....	Harrisburgh, Pa.
Adjustable Sleigh Shafts.....	I. V. Hicks.....	Kalamazoo, Mich.
Spoke-socket.....	C. F. Baker.....	Hartford, Ct.
Thill-coupling.....	C. T. Stuart.....	Brooklyn, N. Y.
Vehicle Brake.....	E. B. C. Willison.....	Wind Ridge, Pa.
Two-wheeled Vehicle.....	J. A. Bilz.....	Pleasanton, Cal.
".....	W. C. Pitner.....	LaPorte, Ind.
Vehicle Wheel.....	G. D. Smith.....	Glen Springs, S. C.

¹Assignor to himself and A. C. Emmick, same place.

²" " of one-half to W. F. Hitchcock, same place.

³" " of two-thirds to W. D. Gerard, same place, and W. D. Royce, Indianapolis, Ind.

⁴" " to himself and C. H. Steinmetz, same place.

⁵" " of one-half to C. C. Post, Ithaca, N. Y.

⁶" " of one-half to H. Stephens, same place.

⁷Said Shaefer assignor to said McDonald.

⁸Assignor to M. L. Scott, same place.

⁹" " of three-fourths to W. Kehl, H. Goldberg and G. P. McFarlan, same place.

¹⁰" " to H. W. Pell, Rome, N. Y.

¹¹" " to the Williams Tension Wheel Co., Newark, N. J.

¹²" " of one-half to J. K. P. Cottrell and E. F. Nye, same place.

¹³" " by mesne assignments of one-half to F. O. Cummings and J. C. Chorpennig, Springfield, Ohio.

¹⁴" " of one-half to H. Slayton, same place.

¹⁵" " of one-half to A. Ochs, same place.

¹⁶" " of one-half to G. Moerlein, same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.

LEFT-OVER TOASTS.

WE present below the four toasts left over from our report of the annual banquet of the Carriage Builders' National Association, held at St. Louis on the evening of Oct. 16th, as described in our last number, concluding on page 591. We trust these will prove sufficient evidence that even cold toast has qualities to recommend it.

* * *

SIXTH REGULAR TOAST.—SENTIMENT: "*The Progress of American Inventions.*"

RESPONSE BY WM. M. ECCLES, ESQ.

MR. CHAIRMAN AND GENTLEMEN: I would give a kingdom for a horse with which to ride away from this convention. [Laughter.] Your worthy President tells you a great many funny things about this patent law business. Now I am not here to answer his fun. I never was funny in my life but once, and then I got a licking for it [Laughter], and I shall never attempt it again. Of all the toasts that were ever presented to a man to answer, I think this is the driest toast I ever tasted. [Laughter.] There may, however, be topics connected with it which will be of interest to the manufacturers of this country, and specially to you gentlemen, now before me, who represent one of the largest and most rapidly growing interests of the United States. [Applause.]

The mother of invention is no longer necessity. The mother of invention to-day is the good protective tariff law which you have had, backed up by one of the best patent laws any country ever enjoyed. [Applause.] It is these two actors which have developed the intellect and the ingenuity of American citizens or the past twenty-five years in the improvement of machinery, and every conceivable kind of manufacture, so that to-day we are selling watches from right over here in a little town in Illinois to almost every country in Europe. We are to-day sending reapers and binders by the hundreds, and, I may say, by the thousands, into Australia and South America, to reap their golden grain and send it to the consumer. [Applause.]

Necessity, I say, is no longer the mother of invention. Necessity never brought forth the reaper, but the conditions that brought forth the reaper and binder are this protection to American manufactures and this wise and economical patent law you have. [Applause.] Now it is your duty, as manufacturers and carriage-builders, to see to it that these branches of legislation in your country shall not be tampered with. [Applause.] For the moment that any one tampers with your patent law, so as to make a valuable invention no longer valuable, then you will crush the inventive ingenuity of your country. [Applause.] Then you will cease to compete with the world in every manufacturing interest that is near and dear to man. Then you may as well close up your workshops. When you cease to protect the man in his brain-labor, and the manufacturer who employs the brain-labor of others, and the manufacturer who employs machinery to get out cheap work, so that to-day the thousands and millions may live as only the opulent could twenty-five or fifty years ago,—when, I say, you cease to do that, then you must take a second place among the nations of the earth. [Applause.]

The grandest theme, the grandest principle of this country to-day is, gentlemen, this question of your patent law. You have had the present system for forty years past. In 1865, on the patent books of this country there were but a little over 50,000 patents. [A voice. Is that all?] Well, I may be mistaken in the exact figure, but, compared with what it is to-day, it wasn't one-third. Since the war, and since the patent law of 1870 was revised, you have increased it so that the United States patents to-day number over 300,000 [Applause]; and you may know that there are at least 300,000 men who have been working their brains over the best way to produce this article, and the simplest way to produce that, and the most economical way to produce the other, and thereby bringing out the best possible results, not only in your line of manufacture, but in every other kind of manufacture that is carried on in our country to-day.

This movement is not confined to your craft alone. There is the reaper, and the mower, and the sewing machine, and the greatest improvement of all, that light which you see before us, the electric light of Edison, which ranks next to the sun. [Applause.] Edison declared that there should be light, and there was light. But if it had not been for your institutions protecting Edison in his brain-labor, you to-night would have been sitting here by burning oil and smoking lamps. [Applause.] On the contrary, you are sitting to-night under the full blaze of the noonday sun, with a light as near to the sunlight and as near perfection as human ingenuity has thus far reached.

I might continue for hours and hours enumerating the different kinds of inventions and the effects they have upon civilization and upon individuals. Although the inventive ingenuity of this country has produced innumerable machines by means of which many a laboring man has been thrown out of employment for the time being, yet the laboring man need never fear. When I look upon the faces of the men before me, I cannot think there is a man in this house who would ever willfully allow an honest laboring man to suffer. [Applause.] When men grow rich they certainly ought to grow magnanimous, and the very fact of what we see before us to-night shows that the man who performs the labor will always have enough labor to perform, no matter how much machinery there may be to help him perform it. [Applause.] Then, again, there is in the world so much labor to be done that the laboring man needs a machine to help him do it. On the other hand, the machinery employed in your factories accumulates wealth, and whenever a man begins to get wealthy, he begins to catter it, unless he is a miser, and if a miser he very seldom accumulates it, but contents himself to live upon what others accumulate. But any man who starts in this country as an honest man, a man of integrity, a man of spirit, a man of energy, and accumulates wealth, knows generally how to spend his wealth and how to use it; and if he accumulates it by machinery, he will get so lazy himself and big feeling that he will want somebody else to run his machine, and then the laboring man will run the machine and get big pay for it. [Applause.]

Has there ever been a time in the history of any country when the common man, the laboring man, enjoyed the opulence he does to-day in this country? Have you ever known a time in the history of our country, since the war or before the war, when men working for their daily bread, and earning it in the sweat of their brow, could so generally come home and buy all the leading periodicals, and read them, and inform themselves, as your workmen do to-day? Have you ever seen the time when their wives and children could enjoy their company as they do to-day? Have you ever known a time in the history of this country when they were dressed as well as they are to-day? [Applause.]

The laboring man need never fear on account of the rapid progress of invention in this country. Invention is, for the laboring man, his salvation. It both increases his wages and buying capacity, and also cheapens every article of luxury and comfort, placing it in his hands so that he can use it and enjoy it as well as the richest man on earth. The man who gets three dollars a day now in the City of St. Louis, can live just as well as any man needs to live; he can have his reading matter; he can have his nice little home to live in; he can have money wherewith to buy agreeable provisions for his wife and his little children. Before the war, on the other hand, men, when they were poor, were in abject poverty and had no means of information. Gentlemen, when I was a boy the only book

I had to read in God's world, from the beginning of the week to the end of the week, was McGuffey's Spelling Book. That is all I had, and I presume many of you had a similar experience. I presume General Sherman himself can remember those times, away back in Ohio. And Ohio was as proud a State as any in this Union. I was born and reared and educated in Ohio, and I love Ohio [Applause], and I love the United States, and I followed the old hero in the war! [Applause.] I love our country not for the enemies it has made, but for the friends it has made. I love it because of its wise institutions, its institutions of learning and its wise laws; it protects the intellect and the brain of the country; it protects the manufacturers of the country; it protects the poor man as well as the rich man; it protects everybody in its wide domain by the humanity of its laws, and it educates everybody. [Applause.] Give me educated labor, not only protected by wise laws, but sustained by proper patent laws for the progress of invention, and I will show you a country fifty years hence, if God allows me to live fifty years longer, the grandest that ever was conceived of by the mind of man. [Applause.]

I thank you for the attention you have given me. I did not come with a written speech, and I am very glad now that I did not, because it might have been a great deal worse than this. [Applause.]

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SEVENTH REGULAR TOAST.—SENTIMENT: "*The Great West.*"

RESPONSE BY EX-GOV. NORMAN J. COLMAN.

MR. PRESIDENT AND GENTLEMEN: I think if I acted wisely that I should adopt the speech of the presiding officer and say that he has already made the speech set down for me, because I am satisfied it is a better one than I can make. When I was asked if I would respond to a toast here to-night, I first inquired who were to be the other speakers. Finding out who they were, my next inquiry was "How many courses of wine are there to be?" Having been informed that there were to be four courses, I accepted the invitation with the proviso that I should be put low down. I thought by the time my turn was reached, if the gentlemen attending this banquet were like gentlemen who attend most other banquets, that they would be disposed to let me off easily. I even thought that you might have disbanded. In this, you see, I have been disappointed.

Gentlemen, some compliments have been handed around this evening, especially by my friend on the right [referring to Mr. John A. Dillon]. He complimented you as being the handsomest body of men he had ever met, and the richest set of men he had ever addressed, and he said he felt highly honored in addressing such a class of men. Now I want to give you a compliment, and I will say that you are the soberest set of men at half-past twelve o'clock that I have ever seen. I think when you go home and tell your wives and daughters and sweethearts of the compliments bestowed upon you, that they will tell you to come back to St. Louis, because you found such good company there and because you were treated so well. As one of the old citizens of St. Louis, I can say, on behalf of our citizens generally, that when we heard that you, the representative carriage men of this great United States, were about to honor us with your presence, we felt very highly gratified indeed; and I can say to you further that we feel still more gratified in seeing men representing an interest in which we supposed there was so much rivalry and perhaps ill-feeling, dwelling together in good fellowship, with so much of a fraternal feeling prevailing amongst you—such as I have never before witnessed in a like body of men.

When we consider that the largest manufacturing interest in the United States is represented upon this floor to-night, I say we have reason to feel proud of your presence and of the good words you have said about St. Louis. We know that you give employment to hundreds of thousands of workmen, and that these workmen are helping to build up our towns, and erecting homes, and educating their families and giving encouragement to other interests upon which they must rely for their sustenance and comfort. I say, we appreciate this fact, and I bid you God speed in the good work in which you are engaged, and I hope that you will all continue to prosper in the future as you have in the past.

In old times a man was hardly considered a proper person who drove his horse or carriage faster than about a ten-minute gait. We had slow coaches in those times. I don't know that they were as slow as the one in which my friend Gen. Sherman went to California—the Dougherty wagon; but I know if any of us got to driving fast in the days when I was young, and I am rather a young man yet, he was hardly considered a proper person. We have had some good examples of the fast drivers since that time, in Robert Bonner, and William H. Vanderbilt, and even Henry Ward Beecher and others, who say they cannot see any necessity why they should take 10 minutes in going a mile when they can go a mile in 3 minutes, or in 2.40, or even in 2.10. We have men all over the country who now believe in economizing time, and we are glad that you are making carriages in which we can economize time. We are proud of them, and we think that they ought to be in use in every city in a hundred fold greater numbers than they are at the present time. [Applause.]

For my own part, if my best friend were to ask me whether he should put a piano in his parlor, or a carriage in his stable, I would say "By all means put the carriage in the stable, and leave the piano elsewhere!" [Applause.]

Gentlemen, we all know that in our city life we travel at a very fast gait. City life is artificial, and in this artificial life, unless we can get out to enjoy the fresh air, and see the beautiful landscapes, and hear the songsters of the forest, and smell the sweet flowers, we are not fulfilling the mission which God designed we should fulfill; and I say that every man in our cities and towns should have his carriage and horses, for his wife and children to ride in at the evening time; and if he, the husband, cannot make time to go with them, then he should get a "Jay-Eye-See" or a "Maud S," and ride out to enjoy the exhilarating excitement of rushing along at a 2.10 gait. I tell you, those who are engaged in city business, in city life, racking their brains to keep their business going or to advance it in making money, must have relaxation and physical exercise or they will have short days. They need the excitement which a drive in our parks and along our boulevards and good roads affords them, and the man is not taking proper care of himself who does not enjoy himself in this way, nor is the wife taking proper care of her husband who does not urge him to engage in such relaxation. The man occupied in such a life needs the relaxation of fine carriages and stylish horses,—and good fast horses, too! This same feeling is extending all over the country. Forty years ago we used to see ox-carts and old rickety wagons coming here, filled with poverty-stricken occupants. They would settle upon the prairies in Iowa, in Missouri and in Kansas, and could not build houses, but, after settling upon a piece of land, would make huts of sod or dig them out of the banks. I have seen hundreds of them, and know that Gen. Sherman has seen hundreds of them. There were plenty of sod houses built out of the banks. But, gentlemen, it only took a short time to raise a few crops, and then those sod houses gave way to fine cottages, and the old ox-cart gave way to a Studebaker wagon, or some other farm vehicle, and still the work of improvement and development goes on. The prosperous farmer raises his crops of corn and wheat, and cattle; and soon the red wagon no longer answers his purpose, but he must have a buggy or some other kind of fine vehicle to go to church in. That is the way the changes are going all the time. Only a short time ago, Kansas was a part of the great West. They don't admit that now. Only a few years ago, prairie chickens flew over a country now completely dotted with habitations and flourishing with crops of corn, and wheat, and rye, and grass. It is astounding! A great portion of Kansas used, in our school-boy days, to be considered a part of the great American desert. The people have been settling there, and growing crops, and raising flowers, and planting trees, until they have already effected a change in the climatic conditions of the country.

This great American desert, extending to the Rocky Mountains, is going to be inhabited by tens of thousands of farmers, and very soon; and they will want all the carriages that you can make.

Have you ever considered the wonderful growth of this country—that in every twenty-five years of its existence, the population has doubled? Commencing in 1775, we had 3,000,000 of people; in 1800, 6,000,000; in 1825, 12,000,000; in 1850, 24,000,000; and in round numbers 50,000,000 at the present time? In twenty-five years more it will be 100,000,000; in twenty-five years after that, 200,000,000, and, at the same rate, in 1975, there will be 800,000,000 American people who will want your carriages. [Laughter and applause].

But, gentlemen, our wealth has increased still faster than our population. And where does this wealth come from? From the soil. That is where all real wealth comes from. The crops of wheat, and corn and rye, and our beef and mutton and pork all come from the soil, and they keep adding to the productive wealth of this country, making it the richest nation on the face of the earth. Even the trees and the iron come from the soil—the materials with which you make your wagons. They are all dug out of the earth by the hand of labor; and you magnify the value of these products of the soil a hundred and a thousand fold in the carriages you make. [Applause].

But, gentlemen, it is too late to pursue the thought any further. I did think, when Gen. Sherman was giving you some of his experiences, that I would tell you a little about my own. I vegetated in central New-York, in the city of Utica. There was not a railroad when I first came West. I had to travel in a packet until I got to Buffalo. That was not far enough West for me, and so I started for Ohio. I went by Lake Erie, and had my maiden sea-sickness. I thought if I ever had to cross Lake Erie again, that I would go around it if I had to go all the way on foot. [Laughter]. When I went through Ohio I had to use stage-coaches, often getting swamped in the mud. I recollect one instance. Our stage stuck in the mud, and we had to go a long way to get even a rail to lift it out. Well, after we got the coach out, the driver said to one of the passengers: "Won't you please carry that rail a half mile further, because there is another mud-hole there worse than this one?" And I remember what the passenger answered. He said: "I am willing to pay my fare and to walk, but I'll be d—d if I'll carry your rail!" [Laughter].

When I first came to St. Louis, I remember it took me three days and nights to travel from St. Louis to Louisville in a stage-coach, without sleep, sometimes stuck in the mud, sometimes walking, and freezing part of the time. How all these things have changed since that time! Now you can travel between St. Louis and Louisville in eight hours, and in a Pullman coach surrounded by almost the comforts of home.

The changes are constantly going on. We are not the West any longer. St. Louis is not in the West. For the West you will have to go to the Pacific. Go to Kansas City and ask where the "Great West" is, and they will send you further on. Go to Fort Leavenworth or Topeka, and they will send you on to Omaha, which George Francis Train said was the center of the universe. From there they will tell you to go to Salt Lake City, and from there you must go to San Francisco, to Sacramento, or to Portland.

I want, however, to assure you of one thing, that St. Louis is the very hub in this carriage wheel of the United States. In other words, it is the heart of this great nation—at an equal distance between the Atlantic, the Pacific, Maine and the Gulf. Gentlemen, this is where the capital of the nation really ought to be—with no sectionalism, no North, no South, no East, no West, but the capital of one great country, in which all sections have a common interest to determine that they shall for all time to come have but one flag in one nation. [Prolonged applause].

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EIGHTH REGULAR TOAST.—SENTIMENT: "Our Associate Trades."

RESPONSE BY MR. WM. N. FITZ-GERALD, OF NEW-YORK.

MR. PRESIDENT AND GENTLEMEN: I feel very much as though I would like to be back in Jersey. That is where I belong, and really I feel very much as if I was a long way from home. I always make it a rule when I have an impromptu address to make, to spend about two days in writing it out, so as to have about fifteen minutes good talk of some kind or other. If the speech bores you one-fifth as much as it did me in preparing it, then God pity you!

In responding to the toast proposed: "The Accessory Trades," I feel that I should preface my remarks by a few words in explanation. I am not engaged in the manufacture or sale of materials of any kind entering into the construction of a vehicle, but I am doing what I can to aid in supplying designs and furnishing instructive information, and I accept the invitation to speak for the Accessory Trades as a recognition of the advanced position accorded to trade journals as an indispensable factor in the carriage supply industry.

What are the accessory branches? Where do they begin and where do they end? We have the manufacturers of spokes, wheels, axles, springs, ironwork, varnish, leather, lamps, laces, paints and scores of minor articles. They do not build the carriage, but they contribute to that end in a marked degree.

I remember that when this organization was first formed, it was said that there were two representatives of the varnish interest to one carriage-maker, and the carriage-makers were charged with leaving the meeting-rooms through side doors in order to avoid the watchful eyes of the varnish men. [Laughter].

But time has changed all that, and now the spring men stand in front. The bold and aggressive varnish representative is overawed by his younger and more elastic rivals, and the carriage-makers find side doors of no avail as means of retreat. [Laughter]. So he boldly faces the inevitable. Cases are recorded where the carriage manufacturer has actually succeeded in talking down the owner of a patented spring. These cases are rare, but they serve to illustrate the fact that the jawbone is yet a powerful weapon. [Laughter].

The spring men, however, are doing a good work. They are aiding the carriage-maker to sell his vehicles by furnishing him "the best spring in the world," of which there are, I understand, not less than five hundred kinds. [Laughter]. The manufacturer of wheels is doing his part. He makes it possible for the carriage-maker to buy the best wheel that can be made, as well as the worst combination of wood in the form of a wheel that could be devised. Then there is the axle manufacturer, who excels like craftsmen in all parts of the world. He is in all probability the most modest man connected with the accessory trades. He is also one of the most charitable. He is always ready to deduct twenty per cent. from his bill, if the payment of the entire amount would bankrupt his customer. Another worthy member is the manufacturer of carriage irons. He is the good Samaritan who binds up the wounds of the carriage-maker after his conflict with the spring and axle manufacturers. In one respect, however, he fails to follow the example of his predecessors. Taking his cue, as he does, from the modern M. D., he secures his pay by placing a mortgage upon the body of the wounded manufacturer.

You may be tempted to ask, What then becomes of the leather manufacturers, varnish men, producers of paints, bent timber, carriage mountings, etc.? What will they do if the carriage-maker is so thoroughly depleted before they get access to him? Well, they manage to skirmish around and succeed in covering their bills out of discarded effects and by touching appeals to the mourners. [Laughter].

I would not have you think that all this is literally true, yet, if there are any here who are doubtful, let them spend one-half hour in conversation with a carriage manufacturer, and they will be convinced that "the half has not been told." The carriage-maker, finding that all natural laws fail him in his struggle for a fair share of the profits, now appeals, but appeals in vain, for the enactment of

some law that will compel his competitor to reduce his product, and invokes the aid of some good genii to direct the trade to his own factory.

Notwithstanding all the charges made of short-comings, the accessory manufacturers have performed an important part in the development of our carriage trade. They have made it possible to produce good vehicles at low prices; they have contributed their share toward making our finest vehicles the peers of any, and they have taught the world the advantage of looking to our own country for supplies. They produce goods that were exported to the value of \$500,000 last year, while the carriage-makers exported carriages to the value of \$298,000, a goodly percentage of the materials of which was also produced by the accessory trade. The American varnish manufacturer, too, has invaded Europe, and during the year past he has exported goods to the value of \$235,809, against \$72,050 of imports. The value of that varnish sent to England and France alone amounted to \$81,393,—coals to Newcastle, surely.

The records of our Patent Office afford an interesting and suggestive study, the average number of new patents issued weekly being twenty-four, a total of 1,240 per year. Many of these are of no value, but out of the mass there are those that possess real merit, which soon become necessities to the carriage-makers.

The old-time carriage-maker recalls the days when he hewed out his spokes, bored and mortised his hubs, forged clips, jacks, fifth-wheels, bolts, etc., ground paint by hand, and to whom a stitching machine was unknown. Contrast those times with the present, when he can purchase wheels at less cost than to make them; clips, jacks, etc., at a trifle advance over the cost of the metal they are made of, and the vast array of machinery which does in a few moments what formerly required days to perform. Such a man cannot fail to give credit to the skill, enterprise and ingenuity of those who now constitute the accessory trades; and, when the sheriff turns the key upon his factory, he thanks God that, though poor himself, the money he should have had has gone to enhance the wealth of other members of his business family, and he dies with the hope that their charity will give him other than a pauper's grave. [Applause].

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NINTH TOAST (SPECIAL).—SENTIMENT: "The Carriage Monthly Daily."

RESPONDED TO BY MR. GEO. W. W. HOUGHTON, OF NEW-YORK.

MR. CHAIRMAN AND GENTLEMEN: I do not want any more money for the Technical School. While sitting here, I have been informed by Mr. Pray, the treasurer of our committee, that we have all the funds we need for that purpose for a year to come. For two days past I have done more or less screaming in the hall without any acoustic properties, located in an adjoining street, for the sake of that school. That question seems to be settled for at least a year to come, and it is with great pleasure I now turn to quite a different subject.

It has been stated here to-night, that one good paper half makes a good city, and that one good editor or proprietor, as the inspirer of such a newspaper, goes very far towards making a city prosperous. If that is the fact, it would seem to follow as the natural and logical result that a good trade periodical of any kind ought to make a good trade. Now, whether it is that carriage-making is such a remarkably good trade, or whether, out of that trade, has been developed such remarkable genius in the way of editors and publishers, I leave for you to decide; but since the chairman mentioned that he would like to have me answer this toast, I have just had time to make a memorandum of the names of the journals and periodicals which now represent the carriage trade of the United States. The number has surprised me, and I think it will surprise you when I read them. I start with, first, the "Coach, Harness and Saddlery Journal," a weekly paper, of which Mr. Fitz-Gerald, who has just addressed you, is the editor; second, the "Coach Painter," published in Newark, New-Jersey; third, the "Blacksmith and Wheelwright," published in New-York City; fourth, the "Western Carriage, Wagon and Material Journal," published in Chicago; fifth, the "Southern Coach-BUILDER," published in Nashville, Tennessee; sixth, "The Hub," of New-York; seventh, "The Hub Quarterly," of New-York; eighth, the "The Carriage Monthly," of Philadelphia; and ninth and last, the subject of this toast, "THE CARRIAGE MONTHLY DAILY." [Applause.]

For fourteen years past it has been my work to edit and publish once a month the periodical known as "The Hub." I have found that duty all I wanted to attend to; and it is with surprise and with admiration that I have seen, for the past three years, a special daily paper of such excellent qualities as the "CARRIAGE MONTHLY DAILY," presented to you morning after morning during your annual conventions. It seems to me that no one but an editor or publisher can really conceive of the extent of the labor and responsibility involved in removing a portion of one's printing office to a city as far off from the parent office as St. Louis is from that of the "CARRIAGE MONTHLY" in Philadelphia, and morning after morning bringing out a full report of the proceedings of the previous day, so lengthy, and so complicated in many respects, as those of your convention.

It therefore gives me great pleasure to ask you to drink with me, in such sparkling wines, or colored wines, or that beverage of the country known here as "river water,"—which happens to have acted more disastrously on some of our number than all other liquors combined—to the continued prosperity of my honored associates in the business of trade journalism, the Messrs. Ware Bros. and their associates from Philadelphia, publishers of that excellent periodical which once a year greets us for three days in the year, the "CARRIAGE MONTHLY DAILY." [Applause.]

"SPECIAL CART NUMBER:" HUB ALMANAC QUARTERLY.

TWO-WHEEL vehicles are at present so popular, and their manufacture and repair now so largely monopolize the attention of the carriage trade, that we deemed it for the best interest of subscribers that the last issue of our *Hub Almanac Quarterly* should be mainly devoted to a review of this important specialty—carts. Ten of the latest and most salable designs were illustrated; a reduced copy of Gray-Parker's attractive illustration of the "Long-Branch Beach Cart" occupied the place of honor on the title-page; and the letter-press throughout was generously flavored with topics relative to two-wheelers of all kinds. Any *Hub* subscriber who desires to possess a copy of this "Special Cart Number" of our *Hub Almanac Quarterly* can obtain one postpaid by sending us name and address, accompanied by fifteen cents' worth of postage-stamps.

THERE are plenty of people in the world who think they are wise, because they can ask questions that no one but a fool can answer.—*The Century*.



CORRESPONDENCE.

POSTAL-CARD ANSWERS TO CORRESPONDENTS.

To C. C.: As we understand it, a Forder Cab costs at the makers' shops about \$375 (£75). Add \$50 (£10) for boxing and shipping, 35 per cent. duties, and about \$100 for custom charges and freight to the West; and you can thus estimate its approximate cost when set down in your table.

To W. W. G., Hulton, Pa.: We don't know the aggregate number and value of the vehicles annually produced in the United States. Nobody knows. We wish we did. We hope that the Committee on Trade Statistics recently appointed by the Carriage Builders' National Association will be able to tell us something about this next October. In the meantime you may possibly find some assistance in the figures named for us in connection with our editorial review on the subject of "Fires and Insurance," as published in our April number, of this year, page 1, though these are merely estimates, please bear in mind!

THE TURN-UNDER OF BROUGHAMS AND COACHES.

EDITOR OF THE HUB—DEAR SIR: Is it the present custom in New-York shops to continue the turn-under up to the top-rail on Broughams and coaches?

ANSWER.—Yes; in the leading shops of this city the turn-under is continued up to the top-rail, and the flare above the arm-rail is from $\frac{1}{8}$ to $\frac{3}{8}$ in.

DRAWING OF TIRE-HEATING FURNACE WANTED

EDITOR OF THE HUB—DEAR SIR: In *The Hub* for October, on page 485, is a letter from Alexander Naughty, in which he says you sent him a sketch for building a tire-heating furnace. We want to build one, and if you have a printed sketch of such a furnace we would like you to send it to us. Or, if anything has been published in *The Hub* about such a furnace, please tell me where to find it, and greatly oblige,
Yours truly, HAYDOCK BROS.

ANSWER.—See illustrated article entitled "Furnace for Heating Tires," in the May number of *The Hub*, 1882, page 94.

MEXICO WANTS SOME ILLUSTRATED CATALOGUES.

EDITOR OF THE HUB—DEAR SIR: I wish to send catalogues of carriages to a party in Mexico. Will you kindly give me the address of a few leading firms who manufacture carriages, and have issued illustrated catalogues, and greatly oblige,
W. W. WAYLAND,
Box 30, Roxbury P. O., Boston, Mass.

ANSWER.—We have forwarded some names and addresses; but we wish any reader having such illustrated catalogues, and wishing to make a bid for Mexican trade, would immediately forward one to our Boston correspondent.

ALLEGED RECEIPT FOR SHARPENING WORN-OUT FILES.

EDITOR OF THE HUB—DEAR SIR: We have been visited several times by a man giving the name of G. W. McClintock, of 81 N. Wells-st., this city, who has a solution of borax and several acids which he claims is a wonderful thing with which to sharpen worn-out files. He asks \$5 for the receipt, and claims it will do great things. We did not buy, of course, but we now write to you to know your experience and opinion of such inventions, and if you have heard of this party before. If you publish anything, don't use our name, please.
Yours truly, ANONYMOUS.

ANSWER.—We have no knowledge of the person referred to, or of the truth or untruth of the alleged claims for his compound. He may be a perfectly conscientious man, worthy of your credence, and his compound may do all he represents—for aught we know. At the same time, we recommend you in this case to strictly follow the rule we have so often laid down in *The Hub*, namely: *Have no financial transactions of any kind with strangers!* The opposite course opens wide the door to such traveling swindlers as have cursed the carriage trade of this country for many years past.

THE NEW OFFICIAL INDENTURE FOR CARRIAGE APPRENTICES.

NEW-YORK, Nov. 23, 1884.

TO THE EDITOR—DEAR SIR: I have carefully read the new form of indenture offered by the Carriage Builders' Association for adoption by the trade, and it meets with my hearty approval.

I have one addition to suggest, which is, that each member, in taking boys under such an indenture, should furnish names, ages and the branch to which they are apprenticed, to the Secretary of the Association, so that they may be duly recorded for future reference; and, in case the boy should apply for work elsewhere, and should for any reason decline to name his former employer, there will then be a ready means of learning the true facts of the case.

I think this would prove a convenient and proper check on the boys, and one they would not resent. Yours truly, JOHN D. GRIBBON.

CRITICS' CORNER.

[In opening this new department of our magazine, and requesting contributions, the Editor begs to remind correspondents that *criticism* means "the art of judging with propriety of the beauties and imperfections of a production." No mere fault-finder need apply.]

CRITICISM OF THE WORD "TRAP."

MR. GEORGE AUGUSTUS SALA has lately been greatly exercised in his mind about the origin of the word "trap," as applied to two-wheeled conveyances. He thinks it arose from the "trapping" of Mr. William Weere by taking him on his fatal journey to Gills Hill in 1823. Can any of the *Gazette* readers throw any light on the subject? * * *

Mr. Sala says that "trap" is not yet a legitimate English word for a two-wheeled vehicle, although the *Guardian* has an advertisement from a rector, who, in seeking a *locum tenens*, offers the use of a "pony and trap."—*London Carriage Builders' Gazette*.

NOTE.—We in America cannot give the *Gazette* any assistance in this direction, for the word is not in use in this country, excepting by English-born residents.

"D. B."

CALCUTTA, INDIA, 14th October, 1884.

THE EDITOR OF THE HUB—DEAR SIR: In your September number I find a short paragraph headed "Short and Not Sweet." I am indeed astonished that you should have placed the construction you have on the two letters "D. B.," used by me in reply to your query as to the state of business here. It is perfectly plain that, in the ordinary run of abbreviations, D means "decidedly," and B, "bad." Difference in climate possibly creates different modes of thought, but to think that a coach-builder could ever be guilty of profanity, as insinuated, is cruel. I trust this explanation will cause you to regret the report did not arrive in time for your canvass, and I remain,

Very truly yours, one of your Calcutta subscribers, E. R.

NOTE.—Our correspondent's explanation is as satisfactory as it is amiable. We fear we will have to plead guilty in this case to the charge expressed in the motto: "Evil to him who evil thinks," and beg the mercy of the court.

POPULARITY OF WAGONETS.

Coach, Harness and Saddlery, Nov. 15th, in describing a design of Wagonet which it presents, says:

"The Wagonet is not likely to become a popular carriage, but there are localities where it will meet with favor."

We are willing to allow that the particular design referred to "is not likely to become popular," if that will give our exchange any satisfaction; but wagonets as a class have already asserted their right to be numbered among the popular vehicles of the day. Years ago *The Hub* attempted to show that a place was ready for them as soon as they were ready to fill it. To-day they occupy it, as is abundantly proved by the fact that every well-stocked city repository now contains more or less varieties of this convenient type of family carriage, and the demand for them is steadily increasing.

ALLEGED COACH-DOOR SNOBBERY.

"It is declared that a census taken by two New-York gentlemen on Fifth-avenue, shows these results: Of one hundred private vehicles, sixty-eight bore crests or coats-of-arms, nineteen had monograms or initials, and only thirteen were unadorned with a snobbish device."—*The Painter*, Cleveland, O.

EDITORIAL NOTE.—The above sweeping criticism strikes us as unjust in the extreme. Let us accept the data as given, and then see where we stand.

1st. It is asserted that sixty-eight, out of the one hundred vehicles referred to, bore crests or coats-of-arms. Admitted! But this fact alone does not prove snobbery. To make out its case, our Cleveland contem-

porary should show that the owners either had no authority to use such crests or coats-of-arms, or that they introduced them with unbecoming conspicuousness; and on these points no evidence is offered.

2d. It is asserted that nineteen out of the hundred bore monograms or initials. Does our Cleveland contemporary pretend to claim that this was an evidence of snobbery? If so, we can only commiserate him upon being beyond the reach of argument.

3d. It is asserted that "only thirteen (out of the hundred) were unadorned with a snobbish device." Judging by the evidence offered, it is by no means shown that any one of the hundred was "adorned by a snobbish device." But how about this precious baker's dozen, which seem to be alluded to with special commendation? What is our Cleveland contemporary's opinion as to them? As a matter of fact, they were probably either public hacks of the better quality, or carriages that had been jobbed by stables to private individuals on short leases. Fashion and good taste do not antagonize in this matter. Fashion and good taste, both here and abroad, authorize any owner of a private carriage to place upon its door-panels, in reasonable size, any one of the following ornaments: his crest or coat-of-arms (providing, of course, that he is entitled to them), his monogram, the initial of his surname, or any simple and characteristic device of general character which he may choose as a distinguishing feature. Every private carriage is supposed to bear some such ear-mark, and the custom has the same propriety as putting a name-plate or number or peculiar door-knob upon the front door of a private dwelling-house.

We have little patience with any wholesale criticism of the above character; and, in this instance, it seems utterly without foundation in either fact or principle.

TRADE REPORTS FROM SPECIAL CORRESPONDENTS.

FLY-LEAVES FROM A TRAVELER'S NOTE-BOOK.

X. LOCALITY: IOWA.

EDITOR OF THE HUB—DEAR SIR: I will now give you a few items about carriage-makers and the carriage trade in Iowa, covering, however, only a part of the State, and reserving the balance for a future time.

BURLINGTON is a thriving and growing city, and has two good shops. The oldest and largest is that of Messrs. Bennett & Frantz. They have been in Burlington some twenty years or more, have a fine large shop, and make nothing but A No. 1 work. They have a good trade in Iowa, and west of there. Mr. Frantz looks after the trade outside, while Mr. Bennett stays at home attending to the manufacturing. They are both experienced mechanics in their lines, and are reliable in every way. Such a concern and such business men are an honor to any city.

Mr. J. W. Jenkins was formerly of the Hawkeye Carriage-shop (Jenkins & Mercer), but for the last five years has been alone. He is one of the most successful carriage-makers in Iowa, and is a fine mechanic (carriage ironer), and a clear-headed and prompt business man. He is now building a new factory, as his business has increased to such an extent that his old shops are too small. He has a large jobbing trade, and a good business in ordered work. When he gets into his new shops he will carry a larger stock of finished work than he can now; and no one with his industry and push can fail to succeed.

There are still other shops here engaged on heavy farm wagons and jobbing.

MUSCATINE.—Moving up the river we find here Messrs. W. D. Ament & Son, who are engaged on heavy farm wagons and also fine light work. They have been here for years. They formerly built farm wagons alone. Their work has a fine reputation, and when there is any demand they have a good trade for both classes of work. They are good mechanics and honorable dealers, and find their trade increasing every year. Success to them!

Mr. A. S. Knowles formerly did a snug business in light carriage work, but when I was here last I found him winding up his business, in order to go West on a farm. I do not know whether his shop will be again occupied or not. If he produces as good corn and wheat as he did carriages, he will be a successful farmer.

DAVENPORT comes next in order up the river. The leading house here is the Mason Carriage Works, carried on by Mr. John L. Mason, late Mason & Evans. The firm started business in Davenport about sixteen years ago, and built up a fine trade; and Mr. Mason is a skilled mechanic, gives personal attention to all parts of his business, and justly stands in the front rank of fine carriage-makers in the State.

Mr. D. T. Young has of late turned his attention to fire apparatus and heavy work. His son is a member of the firm of Geo. H. Young & Co., who make spring wagons for the trade.

There is also here a new firm, Messrs. A. C. Duve & Co. (two brothers), who make light work and spring wagons, and are doing well.

The firm of Woeber Brothers is also prominent. They came to Davenport twenty-five years ago from Cincinnati, O., and have a successful branch house at Denver, Col. They are doing quite a business.

There are other small shops here, all apparently doing well in a smaller way.

CLINTON has two shops. The largest is that of Messrs. Frank D. McDowell & Co. Frank succeeded his father in business, with Mr. Bentley as his partner, and they are doing a large business in both fine light work and spring wagons for the trade. Mr. McDowell is a good business man, has had large experience, is a fine mechanic (carriage painter), and very popular with all with whom he

comes in contact. The business has been largely increased under the management of the new firm, and this is, I think, destined to become one of the largest concerns in the State.

Messrs. Bryant & Drake are engaged mainly on heavy farm wagons, but build some light work, and have a good general jobbing business. They are good mechanics, and are doing well.

There are other smaller shops here, doing some new work and repairs, but the two above named are the leaders.

DEWITT.—Here we find one shop only, that of Messrs. Phil. Butterfus & Co. who make a few farm wagons, and are working into fine light work. Mr. Butterfus is a careful and reliable business man, and a good mechanic and hard worker. He finds his business increasing a little every year, and has as good a reputation for fine work and fair dealing as any firm in the State.

TIPTON.—Here we find two builders, Messrs. S. R. Nieman and J. M. Sweinhart, both doing a fair business, and reliable men. Tipton is a good country town, situated on a branch of the Chicago & Northwestern R. R. There is a good country trade here, and both of the above firms have their share of it.

CEDAR RAPIDS.—Here we find located the Star Wagon Co., engaged mainly in heavy farm wagons, but, like most of the other large wagon firms, they find it in their interest to make some light spring work to go to their agents with the farm wagons. Their work is second to none in the market in quality, and their trade is on the increase. The officers are Messrs. F. J. Upton, President; B. Frank Parker, Secretary; and C. E. Grosgean, cashier and home salesman. Mr. Upton is from New-Hampshire, and came to Cedar Rapids years ago. He was for a time engaged in railroad building, and he brought large experience to the company, and is an excellent business man. He, as well as Mr. Parker, is out on the road much of the time looking after their trade. Their wagon works comprise one of the largest institutions of this thriving railroad town. I wish them all the success their energy, push and ability entitle them to.

Another house, doing quite a business in light work, is the Soule Carriage Works. Mr. Soule has a patent spring and gear, which he is putting on the market with some success.

There are other smaller shops in Cedar Rapids doing a general jobbing business, but these do not turn out much new work.

WATERLOO.—The principal shop here is that of Messrs. Robinson & Hitt. Mr. Hitt has been in the carriage business at Waterloo for some years, but since Mr. Robinson has gone into the firm they have been extending their business largely. They are making quite a specialty of light omnibuses, which are used largely by hotels, etc., throughout the West. They supply a 'bus selling from \$400 to \$700, and also spring wagons and light work. They are situated favorably for shipping, and will no doubt work up a large and profitable trade.

There are other smaller shops here, but the names of the proprietors escape me.

CEDAR FALLS has but one carriage-shop, that of Mr. S. W. Harris, who has been here several years, and is doing a nice business. He makes excellent work, and finds his business increasing every year. He is a popular man, an excellent mechanic and fair dealer, and will no doubt find his trade improving all the time. Cedar Falls is a thriving town, situated on the Cedar River, in the favored Cedar Valley, with exceptionally good railroad facilities.

INDEPENDENCE.—Here we find only a small business in carriages. The largest shop is that of Mr. John Bittner. He does a good business in general jobbing, and builds some new work. He has ample means to do more business than he does, buys for cash, and is doing well.

Messrs. Whit Brothers are also doing a small business, but mainly jobbing.

MANCHESTER.—Here we find Mr. R. G. Kennedy, who is doing a fair business in jobbing and light carriage work.

EARLVILLE is the headquarters of the firm of Young & Wareham, who came to Iowa from Ohio some years ago, and are making good work and find their business on the increase.

DYERSVILLE has but one carriage-shop, that of Mr. I. Summers, who makes some farm wagons and is also working into light carriages. He has a fine trade in spring wagons, and will, during the coming season, put up some extension-top phaetons. He finds his trade increasing, and no doubt will work up a large trade in time.

DUBUQUE.—In this city the leading carriage establishment, and in fact one of the largest and most successful in the Northwest, is that of Mr. Tom Connolly, who commenced business many years ago, in a small shop, by making farm wagons. He learned his trade in part with Mr. A. A. Cooper, who makes the well-known Cooper wagon, but started for himself in 1857, when he was burned out before he had fairly got under way. With great courage and push, however, he promptly started again, and, in spite of having made nearly a total loss by the fire, he paid all his creditors in full. His business has steadily increased ever since that time, until it has reached its present large dimensions. He works from 60 to 75 hands the year around, builds fine work, and has of late worked into coaches and other heavy work. No one in the business has a better reputation for honorable dealing than Mr. Tom Connolly; and those employed to look after his business at home are all old and trusty employes, including Mr. J. P. Early, his bookkeeper, who has been with him since 1870; Mr. O'Rourke, foreman of his blacksmith department, who has been with him since 1869; and Mr. Gus Jeffray, his foreman trimmer, who has been with him about twenty years. Mr. Connolly can at any time extend his business largely beyond its present dimensions if he so desires, for he now has ample means at his command.

There are several smaller shops here, including Messrs. Asa Roberts, Butt Bros., Thomas Armstrong (in heavy wagons), etc. One of the largest farm-wagon makers in the West is located also here, namely: Mr. A. A. Cooper. He makes nothing but farm wagons, but has been one of the most successful manufacturers in this line in the West, and is already one of the wealthiest men in Dubuque.

I will have to close now, and reserve my report of other Iowa towns for another letter.

Yours truly,

CINCINNATI, O., Nov. 3, 1884.

E. D. MOORE,
of the Royer Wheel Co.

DINNER-HOUR.

"A little nonsense, now and then,
Is relished by the wisest men."

A PRESIDENTIAL CAMPAIGN IN THE EQUINE REPUBLIC.

(See Double-page Illustrated Sheet accompanying this number.)

LAST month we all of us had our fill of politics. This month we are chewing the cud of reflection,—with more or less satisfaction according to the force of our recent predilections, and our ability to readjust ourselves to the changed conditions of to-day. In view of the present somewhat disturbed temper of public sentiment, we take pleasure in herewith presenting to our readers an entire change of scene in the form of a double-page illustrated broadside entitled "A Presidential Campaign in the Equine Republic," drawn expressly for *The Hub* by that well-known specialist, Mr. Gray-Parker. It tells its own story, and will be found entirely non-partisan in its suggestions. Mr. Parker has not intimated what candidate is supported by the stump-speakers shown; but providing it be Maud S., a popular majority may be expected, we think, which will dispense with all need of returning boards.

HANS SAUERMILCH'S STORY OF THE ST. LOUIS CONVENTION.

The Hub's old friend, Hans Sauermilch, visited the carriage-builders' convention at St. Louis, where we were pleased to renew our acquaintance of old; and he has recorded as follows his experiences while there, in the November number of *Coach, Harness and Saddlery*:

Vas I at der Gonvenshun mit Saint Louis? Vell, I dink I vill schmile! It vas a long vays off frum Filadelfy, dot's drue, but der olt mon—dot's nein poss—tinks it vas petter I vas gone, pegauss maybe I gould sold some varneeshes.

Peezness is pooty dull shust now, I can dold you. I haf not solt a thousand gallons uv varneesh dis veek, und I haf offered every conduce-ment.

Der puggy puilders, ven I ask dem, don't you vant ter puy some goot varneesh, say, "Vot ve vant mit it? You tink *ve* pay ter ripen der goots?" Ven a mon looks at me in dot tone uv voice, I make oop my mind I vill not sell him, *und I don't*.

Vell, I vent ter St. Louis, und ven I coom into der Southern Hotel, und found der vellers marching around mit red ribbons on der coats, den I knew der vould pe some unner members dere pesides me und der inner officers. Some uv der members had plue ribbons, but I tink red vas der pootiest. I say, enny golor so it vas red.

Menny uv der members I knew me breviously before, vile some unners haf not yet seen, but dere vas noddings mean apout a varneesh drummer, und I valked oop to efry stranger mit mein pootiest peezeess schmile, und made der stranger veel at home all der time. I vent oop to von mon mit a red ribbon und said: "How you vas?" und grabbed him mit der hant. I told him it vas a nice day, und he said it vas. (He gouldn't say ennyting else mitout he lied.) Den I said: "I am de representatif uv von uv der pest known varneesh houses in dis guntry. Ve make der best—" Before I got enny funder he said: "Ah! yes; your name is Legion?" I said: "No, sir; my name is Sauermilch! Hans Sauermilch." He laffed, he did, he vas such a sholly veller, und said: "Dot's pooty goot! let's haf somedings." *Ve had it*. I vound oudt he vas selling varneeshes—poor varneeshes—not near so goot as dose vich *ve* make. I don't see vy unner varneesh drummers growd demselves into der gonvenshun efry time.

Der peezeess gommenced on Wednesday, ven ve all vent oop to der hall to see der patent springs, und hear Mr. Hooker tell us how mooch monish ve hat safed oop. Den der officers vas all elected some more times, und ve had der rebort uv der Ecksexutif Gommittee. Den coom der kewestion uv var ve vas gone to meet next yahr, und, after efrypody said vare he vanted to go, dey goncluded to go to Poston. Von mon, not sot near me, he said: "I tink ve petter meet in Hades; dot ish vare all der peezeess vas gone." Now, I haf draveled all ofer der guntry und nefer yet hear me uv dot blace. Dot's de blace I vas looking fur, vare dere vas some peezeess.

He didn't say dot oudt lout, pegauss it vould make it varm fur der tellers.

Ferry menny members vas seeck mit der stomachs. It vas all der result uv trinking vater ven dey vas not yused to it. I nefer got dot vay, but ven I am away frum home, I nefer vool mit der strange vater. Some beeples are ferry gareless. Dere are unner pooty puildings in St.

Louis pesides dere hotel vare ve stopped. Von uv dem is der Ockpishun Hall, vare ve all vent to ocksamine der pooty gals und unner ockshibits. Dere var a ferry nice display.

Vednesday night der seety vas all illuminated pegauss *ve* vas dere. St. Louis vas not yused to haling so menny puggy puilders, und batent spring men dere at von time, und it vanted to return der gompliment. Ve accepted der apology und vas glat uv it. Der dinner vas nice und vas vell served; und der speeches! vell, der vasn't a poor von mate. Efry von vas goot. Der varneesh drummers vas not about to make some speeches, or else I gould dold you somedings.

On Friday ve had a drive all ofer der seety. Dere vas shust seecksty landaus in dot funeral, mit a Tally-ho coach on vich vas a Sherman band in der vront. Some beeples dort ve vas a circus und came to der vinders und vatched us, shust a leetle vile. Ven dey vound ve did not need vatching dey vent pack. Ve drofe ail ofer der seety, droo all der parks, und gardens, und den ve coom to der King's Highway. By Shingo! eef I vas a king, I vould own a petter highway den dot vas, or else I vouldn't haf enny. Der dust vas feeften feet deep und ve gouldn't see der driver mit der landau ve vas in. Vell, after driving apout dwenty-five miles ve coom to der Fare grounds, vare der fare vas ready fur us und ve vas ready fur it. Breviously before, howefer, ve vashed der dust oudt uv our moudths, so ve gould eat.

It vas Meister Timken's treat, und, Pots-donner vedder! he spends his monish yust so frie as eef he vas in der varneesh peezeess. Mr. Haydock said, as ve all had a hungry look, ve vould skip grace und sail in. *Ve did it!*

Since eating dot schicken salat und unner tings dere in provided, I tink Meister Timken has der easiest-riding spring in dis guntry. Ven ve vas done eating ve sot in a pile und had our forty-grafs took, und I tink it vill sell vell. It vas shust so pooty as a base-ball glub. Den ve rode pack to der hotel, und der Gonvenshun vas ofer.

Vot you say? Vas it a success? *I dont tink it vas*. Dere vas a goot menny members dere, but I didn't solt a tollar's vordth. I don't goll dot a success. Do you? C. B. S.



NEW-YORK CITY.

YES, thank you! we have settled our election bets.

"A-WHEEL IN THREE CONTINENTS" is the title of an interesting article in the November issue of *Outing and The Wheelman*.

THE NEW-YORK CAB CO. has offered further facilities to the riding public, by establishing several down-town offices where cabs can be ordered.

MAUD S. AGAIN BEATS THE RECORD.—At Lexington, Ky., Nov. 11th, Maud S. trotted a mile in 2.09 $\frac{1}{4}$, thus again lowering her record by over $\frac{1}{2}$ second.

A HUNTING PHAETON, illustrated in one-tenth full size, forms an attractive feature of *Le Peintre en Voitures* for November. Prof. Gribbon commends it as a notably good specimen of drafting.

PERSONAL.—Mr. James Burns, body-maker, of New-Haven, visited us on Nov. 21st. Mr. Burns is well known to our readers by occasional contributions to our Body Department, and he also captured the second prize in the recent competition for the "*Hub Prizes*."

PERSONAL.—Mr. Thomas Howard, the genial and able representative of Messrs. Nobles & Hoare, varnish manufacturers, of London, Eng., is now traveling in the United States, in the interest of the trade of that well-known house; and we were pleased to meet him at the St. Louis convention.

REVISED LIST.—The association of manufacturers of Norway iron carriage and tire bolts, at its October meeting, agreed upon a revised price-list which it proposes strictly to adhere to. The trade has been so profitless, and prices so variously cut, that this measure has been agreed upon as an absolute necessity.

DUTY ON HICKORY SPOKES.—By a decision of the Treasury Department in customs cases, recorded Oct. 30th, hickory spoke bolts are dutiable at 29 per cent. *ad valorem*, under paragraph 222, schedule D., which provides for oar blocks, gun blocks, heading blocks, and all like blocks or sticks, rough hewn or sawed only. [Letter to Collector of Customs at Toledo, O.]

THE NOVEMBER MONTHLIES.—Hard times seem only to stimulate the leading monthlies to renewed energy. Before us are the *Century*, *Harper's*, *Atlantic*, *St. Nicholas*, *Art Amateur* and *Outing and The Wheelman*, each of which well deserves high praise and a detailed review; but lack of space leads us to withhold an expression of our enthusiasm until the appearance of their holiday issues next month.

HERE IS A CHANCE.—Messrs. Uhler & Benton, of New-York City, two enterprising young business men whom we know, are now well situated to take agencies for goods of merit. They are prepared to act as local and export agents for manufacturers, and we believe that here is an opportunity for out-of-town houses to place their specialties in this market on the most advantageous footing. Their address is No. 36 John-st. Their Lewis Axle Machine patent, a very valuable tool, is for sale.

NEW-YORK CITY—continued.

"SPORT-INDUSTRIE" is the title of a new and attractive Austrian exchange, devoted to carriage and harness making. It is edited by Herr Guido A. List, and published twice each month at No. 21 Rembrandt-strasse, Vienna, Austria. The subscription price to America, with postage prepaid, is \$5.00.

HIS LORDSHIP LOSES HIS TRAP.—Sheriff Davidson last month relieved Lord Abercrombie of the care of his handsome team of thoroughbreds; also of an English dog-cart and of a pretty little pony. They were sold by the sheriff's auctioneer, as the consequence of a slight misunderstanding between his lordship and his valet, Charles Singer.

"THE STABLE," London, Eng., says in a recent issue: "In its August number *The Hub* gives an illustration of a new coach by Messrs. Lane, of Philadelphia; and profiting by the kind permission of the editor of the best carriage monthly in the world, we reproduce the article, and give photo-engravings of the illustrations." We are happy to see the new coach thus prominently introduced to our English cousins by our friendly London contemporary.

CITY TRADE is reported upon as follows, under date of Nov. 12th, by a leading New-York carriage-builder: "There is nothing new going on. Everything is quiet, and trade dull." Two other New-York builders report that they have reduced their working forces somewhat, and put all their mechanics on three-quarter time. A fourth says: "What we are now chiefly interested in is the coming of snow. A good sleighing season would be a great boon to the trade."

NEW SULKY FOR MAUD S.—Mr. Robert Bonner is having a sulky built for Maud S., which, it is claimed, will be the lightest ever made. It is to weigh, when completed, only 38½ pounds, or just one pound lighter than the sulky now used for Jay-Eye-See. Though the Queen of the Turf is one-half a hand higher than Jay-Eye-See, she is better fitted to a smaller sulky, owing to difference in form. Mr. Bonner, the new owner of Maud S., has given very minute directions as to the construction of the sulky.

CARRIAGE-MAKERS' GUILDS.—Two joint meetings of the New-York and Brooklyn Guilds of Carriage-Makers were held last month, the first at the rooms of the New-York Guild, and the second at the Hall of the Brooklyn Guild, at which latter meeting a committee of nine, including five members from Brooklyn and four from New-York, were appointed to draft constitutions for both a superior and subordinate guilds. The object in view is to extend the field of work. Another joint meeting will be held at the Hall of the New-York Guild on Monday evening, Dec. 2, to take action on the proposed new constitutions.

THE NEW-YORK CARRIAGE MARKET.—*Coach, Harness and Saddlery*, of Nov. 22d, briefly and correctly states the present depressed condition of this market in the following. It says: "The demand has been fairly satisfactory with leading houses in the fine trade, but otherwise business has been slow, though somewhat better than it was during the earlier part of the month. Dealers in cheap carriages have had a dull trade, and the indications do not favor a change for the better. Sleights are selling well for this season of the year, and the indications favor a demand sufficient to absorb all the fine fancy two and four-passenger sleights in the market. Dealers in carriage materials report trade slow and unsatisfactory."

PERSONAL.—Mr. John W. Britton, of New-York, Ex-President of the Carriage Builders' National Association, was strenuously urged in the late election to accept nomination as the Republican candidate for congressman in the former Fernando Wood district, and there is every reason to believe that he would have been elected; but he positively declined the nomination. We understand that Mr. Lowe Emerson and Mr. Geo. H. Burrows, also prominent members of the Carriage Builders' Association, were offered similar nominations in Cincinnati, but with like result. The trade is to be congratulated both for the honor thus conferred upon its members, and for the fact that it is not thereby to be deprived of the continued services of either of these three gentlemen.

TRADE EMBARRASMENTS.—*Bradstreet's*, during the past thirty days, has reported the following embarrasments on the part of members of the carriage and accessory trades: Louisville Buggy Co., Louisville, Ky., assigned to H. C. Irwin. Geo. Steck, Hughesville, Pa., manufacturer of carriage wood-work, sold out by sheriff. John C. Jager, carriage painter, Northampton (Florence), Mass., in insolvency. John F. Pease & Co., varnish manufacturers, Chicago, Ill., closed by sheriff. Andrew J. Taylor, carriage manufacturer, Sheldon, Ind., confessed judgment for \$7,000. Minneapolis Wagon Co., Minneapolis, Minn., assigned to G. A. McDougall. James Ross, carriage manufacturer, Merrimac, Mass., filed petition in insolvency. Liabilities, \$9,774. Benjamin G. Walker, carriage-maker, Kingston, N. Y., assigned to Jacob K. DeWitt. In October he claimed assets \$14,500 and liabilities \$5,800. J. C. Hutchins, carriages, Lowville, N. Y., assigned. S. H. Beck & Brother, carriages, New Bloomfield, Pa., assigned to A. B. Clouser.

THE BREWSTER-HATCH CASE.—*The Nation*, of New-York, in its issue of Nov. 6th, says: "The judges of the City Court have decided the great Brewster-Hatch carriage case in favor of the defendant, Mr. Rufus Hatch, thus establishing the sound principle that it is illegal for carriage-builders to get or keep custom by bribing the coachmen of their customers. Brewster & Co. were in the habit, it seems, of paying Mr. Hatch's coachman a small *douceur* from time to time, and the man naturally often took his employer's landaulet there, and everything went on pleasantly until a difficulty arose about the settlement of a bill, which led to a disclosure of the facts. Brewster & Co. did not deny them, but insisted that the gifts had been made in accordance with a binding custom; that this custom was of European origin; that it was a good custom, moreover, as it "induces a man to feel more pride in his carriage;" and, further, that it was "treat money." All these defenses the learned Court brushed aside, declaring that no such custom, if it existed, could be upheld in a court of justice; that it "is subversive of all principles of good faith and fair dealing between man and man. It tends to corrupt the morals of employes, and to make them unfaithful to those who are entitled to their disinterested fidelity. Such practices are certainly not consonant with honorable business principle, and they who indulge in them must suffer the consequences, however onerous they may appear to be." A full report of this highly important case will be found in our Office Department this month. It is by no means ended yet.

NEW-YORK STATE.

FIRE.—L. W. Babcock's wagon-shop and residence at Whites-town, N. Y. (near Utica), were burned on the evening of Oct. 30th. Loss, \$5,000, partially covered by insurance.

A CASE OF ALLEGED ARSON.—*The New-York Times* of Oct. 21st, contains the following account of a case of alleged arson: "Syracuse, N. Y., Oct. 20th.—Hugh O'Neil, of Mechanicsville, N. Y., has been brought to this place by Sheriff Van Hoesen on an indictment for arson. Mr. O'Neil lived here for a number of years previous to his departure under suspicious circumstances last February. He was first employed in the office of the Cortland Wagon Co. Leaving his position there he established the O'Neil Wagon Co., which manufactured buggies and other vehicles. He was doing a very prosperous business when he concluded to move his works and stock to Mechanicsville. On the night of Feb. 14th the works in Cortland were destroyed by fire with their contents. The stock and buildings were insured, and the losses were properly ad-

justed by the insurance companies. It was thought the fire was of incendiary origin, and measures were at once taken to find who the guilty party was. A complaint having been made to the authorities, evidence was collected and produced before the Grand Jury at its last session, which resulted in finding a bill of indictment against O'Neil. At a preliminary examination this morning he was held in \$3,000 bail."

NEW-ENGLAND.

SLEIGHING began at Bangor, Me., on Nov. 20th.

FIRE.—Burned, on Friday, Nov. 14th, John Sheldon's wagon-shop, Hampden, Mass., together with machinery, tools and stock of wagons. Loss, \$4,000; insurance, \$2,000.

TOO PREVIOUS, IT HAS PROVED.—Mr. Samuel Fessenden, of Stamford, Conn., it is said, was so certain Blaine would be elected that he told his coachman he would not need his services this winter, as he was going to remove to Washington after election.

TRADE IN NEW-HAVEN is excessively dull at this time. Many mechanics have been laid off, and nearly all the remainder are working on short time. Judging from reports received, Messrs. Holcomb Bros. & Co. would seem almost the only house showing any signs of marked activity.

A CHANGE.—The firm of Wm. P. Sargent & Co., carriage-builders and dealers, Boston, Mass., has dissolved by mutual consent, Mr. French retiring from the partnership, but still remaining with the house. The business will be carried on as before by Mr. Sargent, under the same style; and the capital invested is undiminished.

LOCAL NEWS ONCE MORE APPRECIATED.—Now that the official count of the election returns has been announced, the country editor can sit back in his chair, make a note of the fact that the village is to have a new pump, and that the friends of the blacksmith are rejoiced to hear that a new coat of paint is to be put on his place of business.—*Boston Post*.

PERSONAL.—A letter from Meriden, Conn., dated Oct. 20th, states that Mr. Albert G. Pratt, of that city, a carriage painter, aged 45 years, had just recovered from an attack of hiccough which lasted 12 days and 9 hours without intermission, during which time he hiccoughed at every respiration. Medical men say nine days' continuous hiccough has heretofore proved fatal.

PROPOSES TO COMPLIMENT PRESIDENT CLEVELAND.—John A. Glasbrenner, a blacksmith of Uncasville, Conn., recently brought down with his shot-gun an American eagle which is said to be the largest one in captivity. The bird was not injured, and is kept chained in the blacksmith's cellar. From tip to tip it measures 7½ feet. Mr. Glasbrenner says he is going to send it to Mr. Cleveland as soon as he is inaugurated.

PERSONAL.—Dr. Oliver Wendell Holmes, of Boston, Mass., in acknowledging receipt of copy of our last number, containing article entitled "Dr. Holmes on Wheels," kindly writes as follows, under date of Nov. 26th: "I have had so much pleasure in looking through *The Hub* that I must thank you, though you say I need not take that trouble. It is a remarkable sign of the times that so carefully arranged, elegantly printed, and finely illustrated a periodical can be maintained by a single manufacturing guild."

IMPROVED FACILITIES.—The young and enterprising firm of Francis & Smith, of Amesbury, Mass., have introduced in their works a new steel 35-horse-power horizontal tubular boiler. The shell thereof is 16 inch steel, and heads 38 inch steel. They are also now building a new brick boiler-house for its reception, Mr. H. O. Dearbon being the contractor. We are informed that they had six car-loads of lumber due last month. Their mill is a hive of industry, and they are full of orders at the present time.

CARRIAGE HARDWARE MANUFACTURERS' ASSOCIATION.—A National Association of Carriage Hardware Manufacturers was completed at Meriden, Conn., on Thursday, Nov. 20th. The membership present included representatives of a majority of the leading carriage hardware manufacturers in this country; and letters were read from many other houses, agreeing to stand by the action of the Association. It was decided to form a pooling combination, placing under a penalty members who violated the pooling rates and conditions. Prices were not settled upon, but a meeting will be held at an early day to arrange a scale.

HOUSE WARMING.—The brush factory of Messrs. John L. Whiting & Son, just completed in Boston, Mass., is the largest in this country. It contains six floors, with about 8,000 feet to the floor, and affords ample opportunity for the increased business of the firm which now employs over 400 operatives. On Wednesday evening, Nov. 19th, the new building was lighted for the first time, and in it the proprietors gave a grand reception to their employes. The new floors afforded excellent facilities for dancing, and the ball and supper rooms were unequaled for comfort and convenience. Mr. John L. Whiting acted as general manager, and an efficient floor manager was found in Mr. W. S. Whiting. A fine supper followed, and the evening throughout proved one of unalloyed enjoyment for the 400 ladies and gentlemen who were present, all of whom united in acknowledging this as a liberal and graceful tribute from employer to employed. We are only sorry that we were unable to accept the invitation kindly sent to *The Hub*.

MIDDLE STATES.

FIRE.—The carriage paint-shop of H. Acker, Perth Amboy, N. J., was burned on the morning of Sept. 15th.

PERSONAL.—Mr. Wm. Baldwin, of Phineas Jones & Co., wheel manufacturers, Newark, N. J., sailed for Europe on Sept. 4th. The trip is for recreation.

Mr. H. M. DUBOIS, proprietor of the Union Spoke, Rim and Wheel Works, Philadelphia, Pa., reports under date of Nov. 20th, that trade is rather quiet, but that he is receiving his share.

WASHINGTON GUIDE-BOOK.—We beg to acknowledge receipt of the new hand-book entitled: "Historical and Commercial Sketches of Washington and Environs, the Paris of America." It includes, on page 260, an appreciative review of Andrew J. Joyce's carriage works.

FIRE.—The carriage factory and residence of Charles West, Tenafla, N. J., was burned the morning of Sept. 14th. Mr. West and his son, who were alone in the house, narrowly escaped. The destruction of both buildings was complete. The insurance on buildings and stock was \$4,000.

MYSTERIOUS ACCIDENT.—Chas. Kohel recently met his death by the explosion of a pot of paint in the Francke silk mill in Paterson, N. J. The cause of the explosion is a mystery. The fireman a few days before was bringing the pot of paint from where it had been standing behind the boiler, when, without warning, it went to pieces in a flash of flame that filled the entire engine-room.—*Coach Painter*.

WESTERN STATES.

FIRE.—The Illinois Wagon Co.'s factory, Chicago, Ill., was injured by fire on Oct. 20th. The loss was slight, and business was continued as usual after a few days' interruption.

STILL ANOTHER CANDIDATE.—*The Michigan Buggy Journal* is the name of a new monthly periodical published at Kalamazoo, Mich.

FIRE.—C. R. & J. C. Wilson's carriage and woodwork factory, Detroit, Mich., filled with carriage and sleigh frames, was destroyed by fire on Nov. 9th. Loss between \$50,000 and \$75,000.

IN FINE PENMANSHIP. Mr. Frazer, of the Royer Wheel Co., Cincinnati, O., holds the palm among members of the carriage and accessory trades so far as heard from. It is graceful, full of character, and remarkably legible.

FAIR, AND PROMISING WELL.—Mr. E. D. Moore, of the Royer Wheel Co., writes as follows from St. Paul, Minn., under date of Nov. 15th: "Trade at present is poor throughout the Northwest, but the outlook for another season is fair. I believe we shall have a fair trade in 1885."

PERSONAL.—Mr. T. T. Haydock, the well-known carriage-builder of Cincinnati, O., recently met with a sad loss in the sudden death of his eldest son, William W., twenty years of age. The sad event took place at Jersey City, N. J., while the young man was on a pleasure trip in the East.

S. S. TERWILGER, JR., of Shelbyville, Mo., makes the following cheerful report: "Business has been splendid with us this season, and we have been cleaned out of almost everything we had on wheels. We have no reason to complain at all, and we hope these few lines will find *The Hub* as prosperous as we are."

REMOVAL.—We have received word, under date of Nov. 14th, that the Wallis Carriage Co., of Clinton Junction, Wis., are about to remove to LaCrosse, Wis. A new company has been formed, with a large capital, and propose to do an extensive business in fine work. The new company is to be called The Wallis Carriage Co., same as now.

THE ROYER WHEEL CO., of Cincinnati, O., report as follows, through one of their representatives, under a recent date. The writer says: "Our trade has been dull of late, partly owing, no doubt, to the Presidential contest which has so long occupied the attention of the people; but we hope for and expect an improvement during December and January."

A GRAND CHANCE FOR SOMEBODY.—As will be noticed in our Want column this month (see page 648), there is a Western manufacturer who wants a traveling salesman. The advertisement is anonymous, but we violate no confidence in stating that it emanates from one of the largest and most estimable houses in this country, and any one who secures the position and proves himself capable of filling it, has our congratulations in advance.

A GOOD SAND-BAND.—Carriage-makers are often at a loss to obtain a simple, practical, effective and inexpensive attachment for the protection of carriage axles. Willis M. Farr, of Dowagiac, Mich., manufactures a neat and easily-applied article which in every way supplies this need, and he is gradually introducing the band to the carriage hardware jobbing trade throughout the country.

BLOOD WILL TELL.—"Of the 163 vehicles lately on exhibition at the Chicago Inter-State Exposition, 120 were finished with Valentine's Varnishes, and 19 of the balance were in doubt. Without speaking disparagingly of English varnish companies, this showing is thought to be a pretty good card for this great American varnish company. Facts and figures are potent. The Valentine fine varnishes contain sterling qualities which place them in the first rank every time."—*Western Carriage, Wagon and Materials Journal*, Chicago, Ill.

ANOTHER TRAVELING SWINDLER.—The *Coach Painter*, in its November issue, calls attention to another traveling swindler who is in the field. It says: "A Western correspondent writes us that a person passing under the name of A. Siegel, and pretending to represent The American Varnish Co., has been working Kansas recently. He persuaded J. A. Gleissner, a carriage-builder of Abilene, Kan., to indorse a draft for \$150, which Mr. G. had the pleasure of afterwards paying. He is apparently about 45 years old, and a Jew. Look out for him!"

A NEW CARRIAGE FACTORY has been opened in St. Paul, Minn., by John Kelliher, situated at Nos. 192 and 194 West 3d-st. Mr. Kelliher has ample means, and has employed Mr. George McKay, late of the Winona Carriage Co., Winona, Minn., as general superintendent of the works. Mr. McKay brings large experience to the business, and he has an extensive acquaintance with the trade in the Northwest. The new shop is large and roomy, and has a fine show-room. The location is good, and we expect that Mr. Kelliher will build up a large business in due time.

SLACK TRADE DEMANDS ACTIVE EFFORT.—Our Chicago contemporary offers the following happy thought to its advertising patrons, in which *The Hub* fully concurs: "When trade is good and orders plenty, advertising is not absolutely necessary. It is when trade is poor that advertising tells. In dull times the most active dealer gets the business. Now is the time for dealers to show their agility and dexterity by advertising, and letting buyers know that they are ready to give bargains. The night of depression has passed; daylight has come, and all know that it is the early bird that catches the worm. The quickest and cheapest way to reach customers is through the trade journal."

MORE TRAVELING SWINDLERS HERALDED IN THE WEST.—The *Western Carriage, Wagon and Materials Journal*, Chicago, Ill., in its November issue says: "Traveling swindlers are again at work on the carriage and wagon-builders. Those of the carriage fraternity who take the papers are posted, or ought to be; and, if they get bit, should suffer the consequences without a murmur. Those who do not take the papers, should do likewise. Ignorance of law is not admitted as an excuse for its violation, and ignorance of the fact that no responsible and respectable house allows its traveling men to draw for current expenses, is no excuse for cashing swindlers' drafts. Read the law, and subscribe for the trade journals!"

THE KING VARNISH CO., of Akron, O., having secured the services of the head varnish-maker of the late Forest City Varnish Co., of Cleveland, are now in a position to furnish the above company's late customers with the same grade of goods they formerly purchased, and made after the same formulas. The old force of The King Varnish Co. will be retained, and they will continue to manufacture their standard grade of goods which have pleased their customers and built up for them a large and rapidly increasing trade. The formulas of the late Forest City Varnish Co. having been transferred to this company and none other, they alone can with certainty supply the same grade of goods. We take pleasure in referring to them the customers of the late Forest City Varnish Co.

TRADE REPORT FROM DURANGO, COL.—Our subscriber and valued correspondent, Mr. R. H. Hudson, carriage-maker, of Durango, Col., has forwarded the following interesting report of affairs in that part of the world. He says: "You ask how trade is? It is fine! Better than for the past three years! We build light and heavy express, meat, milk, bakers' and grocers' delivery wagons and a few sleighs; and also have a good repair trade. We are located in the southwestern corner of the State, near Utah, Arizona and New-Mexico, on the extreme frontier, and near those pets of the United States Government, the Ute Indians. If the Government should hereafter order broughams

or landaus for them, with rumble attached to each for a Government soldier, then we shall start in on finer work, which is our best hold. Among the very many items of interest I have recently noticed in your magazine was one causing feelings of sorrow, namely: that recording the death of Burrill Manville of New-Haven. Your likeness of him was good. I was once a near neighbor of his in that city, where I was a member of the craft for a number of years, before I took Horace Greeley's advice, and came West. I heartily congratulate *The Hub* upon its success during the past few years."

TRADE REPORT FROM OSKALOOSA, IOWA.—Mr. Joseph Jones, a valued subscriber, includes the following trade report in his last letter: "In regard to the carriage trade in Oskaloosa and vicinity, the weather this season has been very favorable for the farmers, who have a bountiful crop; though, owing to the low prices offered, and their unwillingness to part with their stock and grain at present figures, business is still rather quiet. We look, however, for a good season next year. I have sold about 100 new jobs already this season, and expect to sell a few more this season yet. I hope also to increase my output next year. I look carefully after the repairing, and find that is the mainstay nowadays of the small manufacturer. A short time ago I was presented with a number of what, to a carriage-maker, was a bonanza, namely: 35 copies of *Saladee's Carriage Magazine*, including the full numbers for 1855, the first year it was published, the full numbers of 1856, and all of 1857 except November. They are in a first-class state of preservation. By comparison with *The Hub* these show what a stride the carriage trade, and especially the trade journals, have made in the last 30 years. I wish you continued success." Allow us Mr. Jones, to return the compliment!

SOUTHERN STATES.

CARRIAGES AND COFFINS are advertised jointly by our subscriber, W. T. Critcher, of Roxboro, N. C. Of them he says: "I buy cheap, and intend to sell at rock-bottom prices. Call and see your friend!"

FOREIGN.

FIRE.—The Grand Trunk car-shops, at London, Ont., were destroyed by fire on Sept. 20th. Loss, \$500,000.

UNIVERSAL EXPOSITION IN PARIS.—On Nov. 10th, President Grévy, of France, published a decree stating that a universal exhibition will open in Paris on May 5, 1889.

DIED, on Oct. 27th, at Kaltenleutgeben, E. Marius, the esteemed and widely-famed coach-maker of Vienna, Austria, at the age of 66 years. Particulars have not yet reached us.

OMNIBUS SERVICE IN LONDON, ENG.—The last report of the London General Omnibus Co. shows that they carried 36,750,000 passengers during the first six months of the present year, and put on thirty-four new vehicles of an improved pattern.

AMERICAN-BUILT CARRIAGES IN EDINBURGH.—"With the ever-increasing number of American tourists who visit our places of interest, there has been a demand created for ideas that harmonize with theirs; and in Edinburgh, with the view of meeting their wants, some coach hirers have added American-built machines to their stock for this purpose, charging extra, of course, for this novelty."—*London Carriage-Builders' Gazette*.

RESIGNATION.—On Oct. 16th, Mr. C. S. Middleton, of London, Eng., who has been prominently connected with the Institute of British Carriage Manufacturers since its inception, offered his resignation as Secretary of that society, which was accepted. Mr. Middleton has given long and faithful service in the work of organizing and developing this important trade association, which was acknowledged by an appropriate resolution of thanks tendered to him.

TRADE REPORT FROM ENGLAND.—An English coach-builder, in his November letter, says: "Business generally, here in England, has not been good, from all I can hear up and down the country. I was all over in London and in Birmingham the other week, and the same cry arose from each place. Scotland is also very dull at present. The trade is not flourishing at all. One of our coach-builders has been going into the figures lately, and the result is not encouraging to people. There have recently been two very large meetings in London respecting the carriage tax. I hope you will get full reports."

THE CARRIAGE INDUSTRIES IN VICTORIA, N. S. W.—*Coach, Harness and Saddlery*, of recent date, contains a tabular view of the "Carriage and Harness Industries in Victoria, New South Wales," which shows a total of 156 carriage and wagon-makers, employing 1,819 hands, the approximate value of whose plant is £219,063. During 1882, according to this statement, Victoria imported £6,003 worth of carriages, carts and wagons, and exported £11,109; imported £11,447 worth of axles, and exported £1,927; imported £5,363 in other carriage goods and materials, and exported £1,688.

A CARRIAGE FACTORY SUNK.—On July 15th last, the city of Northwich, Cheshire, England, was thrown into a terrible panic. The city is built on grounds containing immense layers of salt, the working of which caused continual land-slides. Ominous sounds could be heard in the framework of houses, and cracks began to appear in the walls. The frightened inhabitants fled to the neighboring hills, and before their eyes a square of buildings located in the middle of the city, and including the carriage factory of Mr. Jones, began to disappear, and by night the only visible remains of the carriage factory were the tops of the chimneys of the engine house. Many inhabitants of Northwich have since left the ill-fated city.

THE ST. MARK'S ART AND TECHNICAL CLASSES FOR COACH Artisans opened their winter term of instruction on Monday evening, October 5th, at 7.30 P. M., at St. Mark's Buildings, George-st., Grosvenor-sq., London. A complete course of instruction will be given in drawing and the technology of carriage building. The instructor-in-chief is Mr. John Robertson, assisted by Mr. Walter Coward, both certificated teachers of the City and Guilds' Institute. Fees: course of twenty-six nights, \$2.00 (8 shillings); and apprentices and youths under twenty, \$1.00 (4 shillings), including drawing paper, use of T and set-squares, scale-rules, and drawing-boards. Every Monday and Wednesday at 7.30 P. M., special facilities are offered for the practice of full-size drawing.

PERSONAL.—We are glad to learn that Mr. E. Howell, late manager of the London repository of Mr. F. Mulliner, is about to establish in that city an office of his own, and act as a carriage draftsman to the trade. We had the pleasure of making Mr. Howell's acquaintance at the Centennial Exhibition in Philadelphia in 1876, where he represented the firm of McNaught & Smith, and we know that he possesses all the requisite qualities for success in the new field, including skill as a draftsman, long experience in the mechanical requirements of the trade, a refined and cultivated taste, and an affable manner, peculiarly calculated to win for him a large circle of friends. Mr. Howell was nine months a pupil of Prof. Albert Dupont, in Paris, and two years a teacher of geometry and mechanical drawing in a Government school of art. He also has a Kensington certificate, and, for a long time past, has been Honorary Assistant Secretary to the Coach-Makers' Institute. Backed by these recommendations and by his personal ability and qualifications, we have every confidence that he will make a success in his new undertaking, and he will please accept *The Hub's* best wishes for speedy and general acknowledgment.

MASSACHUSETTS CHARITABLE MECHANIC ASSOCIATION
AWARDED AT THE THIRD EXHIBITION
SILVER MEDAL AND DIPLOMA 1880

MARYLAND INSTITUTE FOR THE PROMOTION OF MECHANIC ARTS
AWARDED TO
SILVER MEDAL 1873

VALENTINE & COMPANY

COACH & CAR MANUFACTURERS OF VARNISHES

AWARDED TO VALENTINE & COMPANY
SILVER MEDAL AND FIRST DEGREE OF MERIT 1881

AMERICAN INSTITUTE OF THE CITY OF NEW YORK
AWARDED TO VALENTINE & COMPANY
SILVER MEDAL AND DIPLOMA 1859

ESTABLISHED 1832

VALENTINE'S VARNISHES INCORPORATED

ARE SPECIALLY MADE FOR THE CARRIAGE & RAILWAY TRADES

A RECORD OF OVER FIFTY YEARS

SIGNALIZED BY CONSTANT IMPROVEMENTS

HAS SECURED FOR THEM THE FIRST RANK

AMONG HIGH GRADE GOODS THROUGHOUT THE WORLD

THEY EXCEL IN THE IMPORTANT PROPERTIES FOLLOWING:

PALENESS • UNIFORMITY • FLUIDITY • FULLNESS • RELIABILITY • ECONOMY • HARDENING • DURABILITY • DRYING • BRILLIANCY.

NEW YORK BOSTON CHICAGO PARIS

EXPOSITION UNIVERSELLE PARIS 1878
SILVER MEDAL

MELBOURNE INTERNATIONAL EXPOSITION 1880
SILVER MEDAL OF FIRST ORDER OF MERIT

INTERNATIONAL EXHIBITION PHILADELPHIA 1876
BRONZE MEDAL AND DIPLOMA

THE STANDARD FOR QUALITY

TRADE MARK

VALENTINE'S VARNISHES

AMSTERDAM 1883 • AGENCIES ESTABLISHED THROUGHOUT EUROPE • AMSTERDAM 1883

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Conrad B. Day & Co., Philadelphia, Pa... 652
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct.....
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York.
Kemper Bros., Cincinnati, O..... 652
Ten Eick & Kent, 1553 Broadway, New-York 652
S. D. Kimbark, Chicago, Ill..... 665

AXLES.

- Dalzell & Co., So. Egremont, Mass. 671
Improved Collinga Axle.
Goodyear & Ives, New-Haven, Ct..... 652
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O..... 650
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 651
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilmington, Del..... 663
Smith, Carswell and Vandenbraak Axles.
Wood, Smith & Co., Fort Plain, N. Y.... 670
Fort Plain Spring and Axle Works.

BODIES.

- F. T. Clymer, Wilmington, Del..... 673
Carriage Bodies and Carriage Parts.
Jas. Driscoll & Sons Co., Springfield, O.... 657
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 649
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago, Ill..... 665
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O.... 671
Specialty: Eureka Bodies.

BOLTS.

- Norwich Bolt Works, Norwich, Conn..... 660
Genuine Norwry Iron Bolts.
T. Skelly, Philadelphia, Pa..... 648
Philadelphia Bolt Works.

CARRIAGES FOR THE TRADE.

- D. A. Altick & Sons, Lancaster, Pa..... 670
Phaetons and light work.
S. R. Bailey, Amesbury, Mass..... 673
Sleighs in the Wood and Iron.
A. E. & J. H. Christie, Nyack, N. Y..... 661
Fine Family Sleighs.
Michigan Buggy Co., Kalamazoo, Mich... 660
Sleighs and Buggies.
Renick, Curtis & Co., Greencastle, Ind.... 660
The Renick & Curtis Patent Road Cart.
Youngstown Carriage and Wagon Co., Youngstown, O..... 674
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 652
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa. 668
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 658
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O..... 656
Cincinnati Screw and Tap Co., Cincinnati, O. 665
Drills, Screws, Taps, etc.

- The E. D. Clapp Mfg. Co., Auburn, N. Y.. 656
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
C. Cowles & Co., New-Haven, Ct.....
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
Crandal, Stone & Co., Binghamton, N. Y. 669
Carriage Hardware.
W. M. Farr, Dowagiac, Mich.....
Common Sense Sand and Mud Band.
M. T. Gleeson, Columbus, O..... 668
Fine Carriage Mountings.
Kerr & Reid, Bridgeport, Ct..... 668
Cart Irons.
S. D. Kimbark, Chicago, Ill..... 665
Carriage and Wagon Hardware.
Geo. G. Larkin..... 674
Carriage Top Stays and Sleigh Shoes.
Metal Stamping Co., New-York..... 650
Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)
Queen City Forging Co., Cincinnati, O.... 659
Carriage Hardware.
Rubber Step Mfg. Co., Boston, Mass..... 662
The Rubber Covered Carriage Step.
H. D. Smith & Co., Plantsville, Ct.....
.....4th cover page
The "Encircled S" brand of Fine Carriage Forgings.
H. M. Strieby & Co., Newark, N. J..... 670
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
Topliff & Ely, Elyria, Ohio..... 661
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
Vehicle Shaft Supporter Mfg. Co., Cincinnati, O..... 669
Iron Shifting Rails.
Walter & Miller, Fremont, Ohio..... 667
Seat Rails, Forging to order, etc.
White Mfg. Co., New-Haven, Ct..... 658
Pole Crabs. (See Lamps.)

IRON AND STEEL.

- C. B. Clarke, St. Louis, Mo..... 672
Silvester Patent Tire.
S. D. Kimbark, Chicago, Ill..... 665
American and Norway Iron, Steel Tire, etc.
Wm. & Harvey Rowland, Frankford, Philadelphia 654
Iron and Steel. (See also Springs.)

LAMPS.

- C. Cowles & Co., New-Haven, Ct.....
(See also Hardware and Mountings.)
White Mfg. Co., Bridgeport, Ct..... 658

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 656
A Substitute for Leather.
T. P. Howell & Co., Newark, N. J..... 663
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich..... 658
Little Giant Hub-Borer.
W. F. & John Barnes, Rockford, Ill..... 653
Foot and Steam Power Machinery.
Bentel, Margedant & Co..... 657
Woodworking Machinery.
Bradley & Co., Syracuse, N. Y..... 650
Power Cushioned Hammer, and Heating Forge for hard coal or coke.
Capital City Mach. Works, Columbus, O... 669
Standish Imp. Foot Power Hammer or Oliver.
The Egan Co., Cincinnati, O..... 662
Carriage Wood-working Machinery.
Defiance Machine Works, Defiance, O.... 674
Hub, Spoke, Wheel and Bending Machinery.

- J. A. Fay & Co., Cincinnati, O..... 660
Woodworking Machinery.
George W. Heartley, Toledo, O..... 659
Little Giant Axle Box Press.
Mason Wheel Co., Crown Point, N. Y.... 674
Wheel Tenoning Machine.
H. A. Moyer, Syracuse, N. Y..... 667
Hub Boring and Boxing Machine.
C. F. Pettingell & Co., Amesbury, Mass... 658
Full line of Patented Carriage and Wheel Machinery.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 660

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O..... 674
Coach and Car Colors and Varnishes.
F. W. Devoe & Co., New-York... 3d cover page
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa.... 663
Ivory Drop Black.
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SPECIAL NOTICE.—As the present season promises to be rather a trying one for many carriage mechanics, *The Hub* desires to offer a helping hand by opening this "Want Column," free of charge to all carriage mechanics seeking employment, and also to all employers seeking workmen, the only conditions being, that each advertisement shall be limited to five lines, and some address must be given to avoid the necessity of addressing letters in our care.

"THE HUB," 323 Pearl-street.

—WANTED.—Situation wanted by a first-class body-maker. Heavy and light work. Understands drafting and getting out stock. Address P. M. D., *Hub* office.

—WANTED.—Situation as traveling salesman with a reliable carriage and saddlery hardware house, by a trimmer who understands both branches of the business. Good references. Address W. H., P. O. Box 608, Bay City, Mich.

—TO INVENTORS AND MANUFACTURERS OF CARRIAGE GOODS AND MATERIALS.—I desire the New-York agency for some new or staple articles. Having an experience of 25 years in the trade, an extensive acquaintance, and the control of unusual facilities for pushing business through the medium of advertising, I am convinced that an arrangement will be to the benefit of all concerned. Address "Trade," care of W. Talbot Burke, 27 Bond-st., New-York City.

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A SALESMAN for Ohio, Pennsylvania and Maryland territory, by a Western Wheel Manufactory.

ONLY STANDARD GOODS MANUFACTURED.

Address "MANUFACTORY," care of *The Hub*, giving references, experience in selling goods, and salary expected.



**PORTER'S
"EASY" BOLT CLIPPER
IS THE BEST.**

NEW-YORK, 11 January, 1882.
MESSRS. PORTER & WOOSTER—Gents: Yours of 10th duly received, and we beg to say in reply that we like your "EASY" BOLT CLIPPER, and find it indispensable in our business, and can recommend it with entire confidence to the trade.

Yours truly,
J. B. BREWSTER & Co., of 25th-street.

Write for New Circular. PORTER & WOOSTER,
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Manufacturer of finest NORWAY IRON Carriage, Tire and Spring Bolts, and all the various styles of fancy Bolts used by Makers of Fine Carriages.

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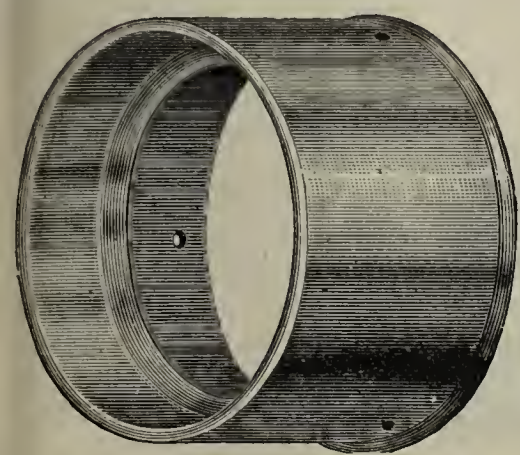
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Manufacturers of the following Specialties:

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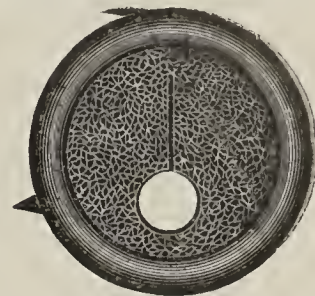
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Knob Patch and Fastener.

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MANUFACTURERS OF

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Titus's Pat. Bent Sill Phaeton Body.

Acknowledged to be the best Phaeton Body ever put on the market.

Send for Descriptive Circular and Price-list.



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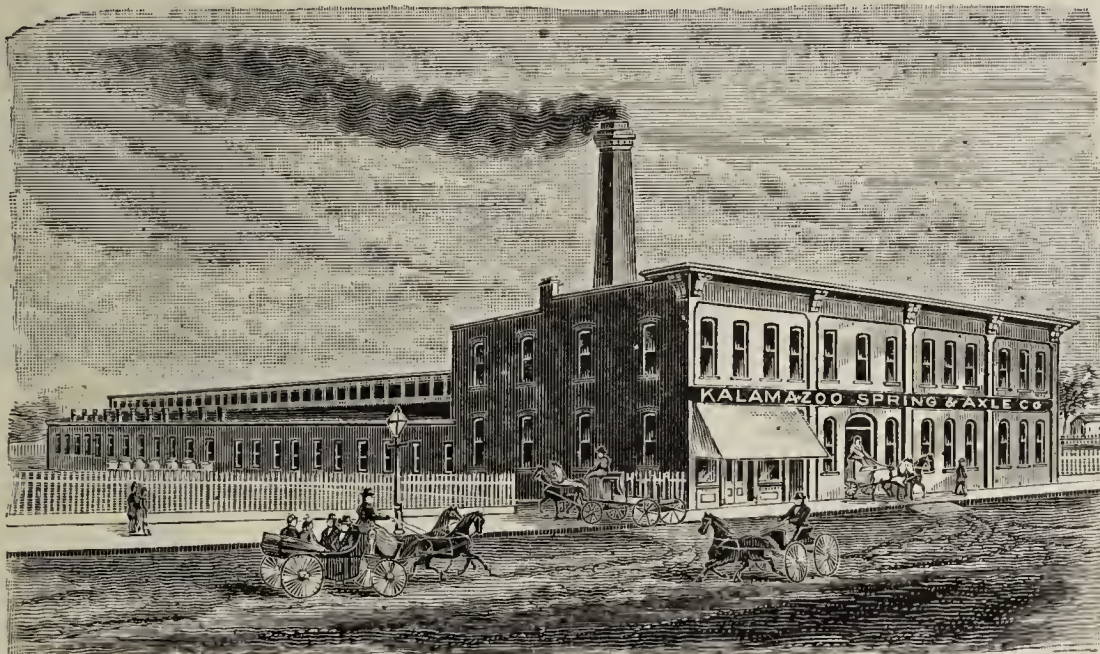
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Estimates on this class of work given on application, and satisfaction in material and workmanship guaranteed.



MANUFACTURERS OF ALL STYLES OF

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Makers of all the Standard Patent Springs.

Send for Catalogue and Terms.

ALL WORK WARRANTED.

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Lining and Saddle Nails.
Upholsterers', Gimp, Lace, Trimmers', Carpet Tacks (Blued, Tinned and Coppered.)
Silvered, Japanned and Colored Lining and Saddle Nails.
ALSO,
Tufting Buttons, with every eye soldered to its back, which makes the strongest button in the market. (Patented June 28th, 1881.)
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HAVING the most extensive and best appointed Spring Works in the country, provided with the latest and most improved machinery, prices are always as low as is consistent with the highest standard of excellence in material and manufacture.

Points of Excellence.

1. Can be oiled without taking off wheel.
2. Can oil without unhitching.
3. Oil reservoir holds enough oil to run 2,000 to 3,000 miles.
4. Is perfectly sand-proof.
5. The box is as easily set as an ordinary box.
6. All washers run in clean oil, and hence will not wear.
7. Oil cannot escape at either end of hub, hence will not collect dirt.
8. The oil tube prevents box from turning in hub.
9. The oil-cup on end of box prevents it slipping back.
10. Will not rattle.
11. Will wear twice as long as the half-patent axle which is in general use.
12. Will not lock.
13. Does not require a larger hub than for the wrought-iron box.

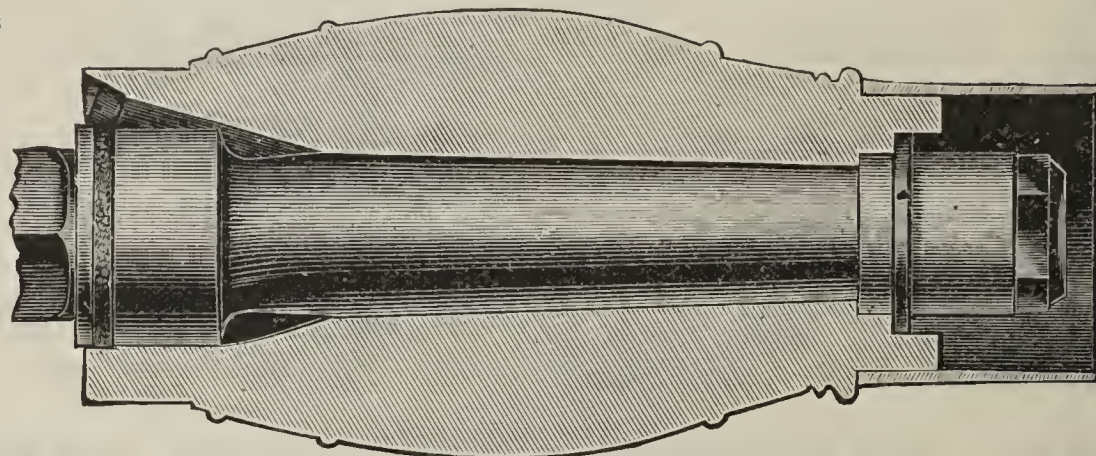
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Self-Lubricator and Sand-Proof.

MANUFACTURED BY

A. D. Howe & Co., Coshocton, O.

The Simplest, Cheapest and Best Self-Lubricator made.



Will Furnish, Cash with Order, a Trial Set

7/8 Fantail, Fine Steel Axles, for	:	:	:	:	:	:	\$4.50
Inch " Refined Iron "	:	:	:	:	:	:	3.50

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Houston Hay, Coshocton, O., licensed to manufacture for and sell to the trade.

No handling dirty wheels.
No soiling of hands or clothing; a lady can oil if necessary.

No dust or grit falling on the spindle, or washers dropping into the dirt.

When necessary to oil, that being about every two or three months, requires less than one-fourth the time it does to oil the ordinary axle.

The prevalent idea that the spindle and box of an axle should be cleaned at every oiling is correct concerning the ordinary axle, but does not apply to this axle because all foreign substances, such as dirt, grit, etc., are excluded.

When a journal or spindle is kept thoroughly oiled, the wear is almost imperceptible. Hence it follows that as there is nothing on spindle or in the box but oil, it is not necessary to clean them before oiling. Clean castor oil will not gum.

METAL STAMPING CO.

Nos. 134 and 136 Duane-st.,
NEW-YORK,

Manufacturers of Specialties in
*Carriage Trimmings
and Hardware.*

NEW ILLUSTRATED CATALOGUE MAILED FREE ON APPLICATION.

Bradley's Cushioned Hammer

STANDS TO-DAY

Without an Equal.

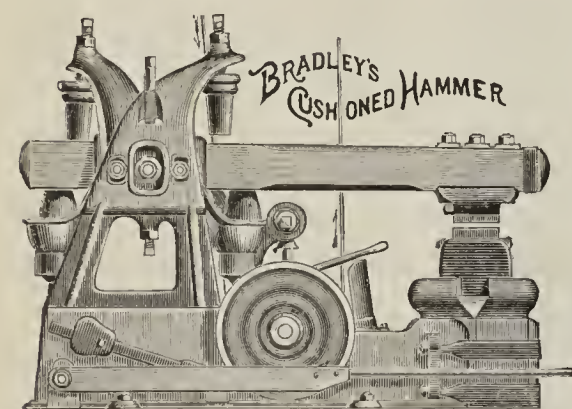
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and highly commended by numbers of Carriage Builders in whose shops they are to-day giving complete satisfaction.

It approaches nearer the action of the smith's arm than any other hammer in the world.

*Heating Forges for Hard
Coal or Coke.*

(ESTABLISHED 1832.)



Bradley & Co., Syracuse, N.Y.

A STEP IN ADVANCE!

A LEATHER-COVERED CARRIAGE BOW at a
Low Price!



This Bow is Strong, Light, Neat and Durable; in every way perfect, and adapted to first-class work.

We also manufacture a fine line of
Carriage-Top Hardware.

Our goods are sold by all
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JOHN S. POYEN & Co., Amesbury and
Merrimac, Mass., New-England
Agents.

Pat. June 20, '82; Oct. 24, '82; Dec. 5,
'82. Other patents applied for.

For Catalogue and particulars, address

The Ashtabula Carriage Bow Co., Ashtabula, O.

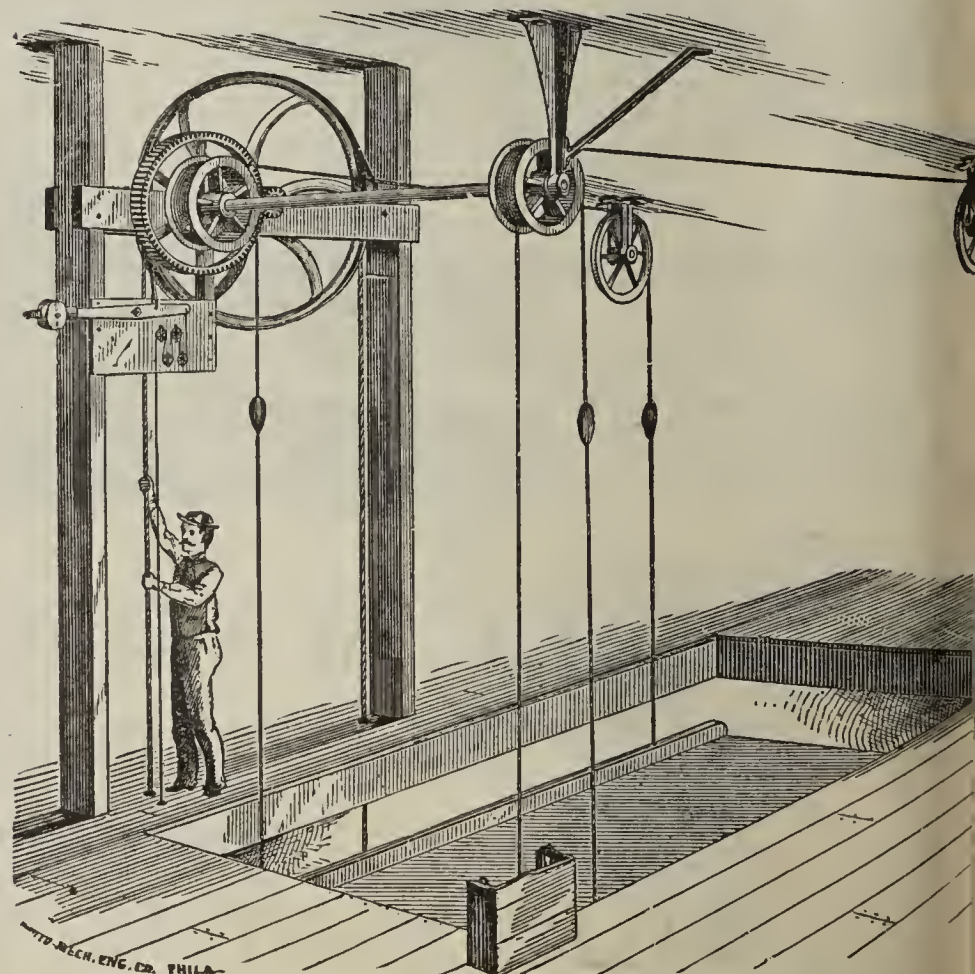
STEPHEN A. MORSE.

CHARLES M. WILLIAMS.

EDWIN F. MORSE.

CLEM & MORSE, CARRIAGE ELEVATOR,

For Livery and Private Stables, Carriage Manufactories, etc.

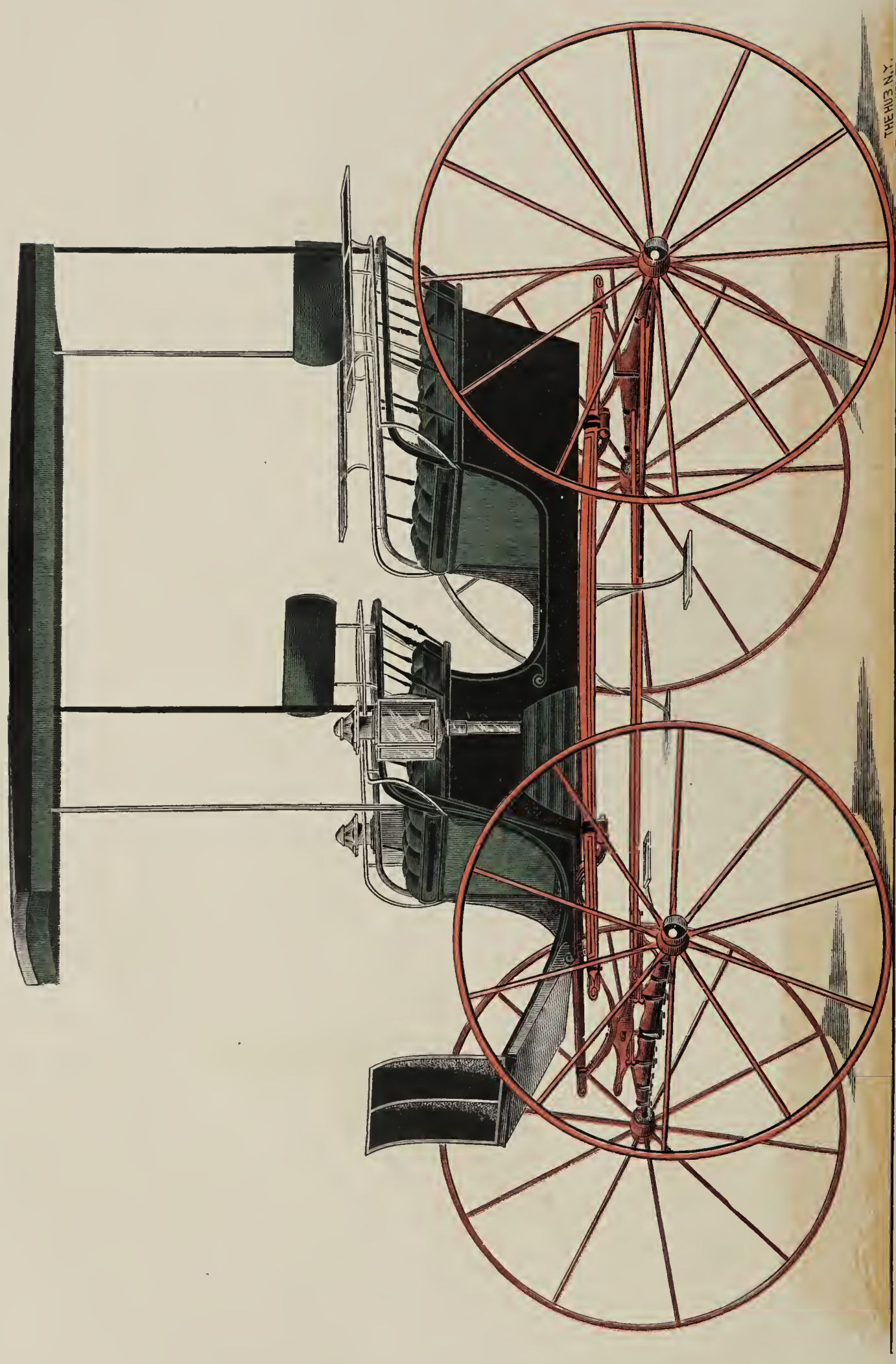


The accompanying cut shows our No. 5 Hand-Power Carriage Elevator. The platform is flat, with no obstructions above, and can be made of size to suit any carriage or wagon; is suspended by four fine wire cables, which wind on grooved drums, preventing cables from rubbing and wearing. Platform has guides on one side only, and is provided with adjustable counterbalance weight. The machinery is controlled by our new friction-brake, operated by single check line.

Also Builders of all kinds of Passenger and Freight Elevators.

Main office and Works: 411 and 413 Cherry-st., Phila., Pa.

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COLORÉD PLATE NO. LV. FOUR-PASSENGER CANOPY-TOP PHAETON, WITH IMITATION WHEEL-HOUSE.

SCALE, THREE-QUARTER INCH.

The Hub's

Fashion Plates: Winter Season, 1884-5.

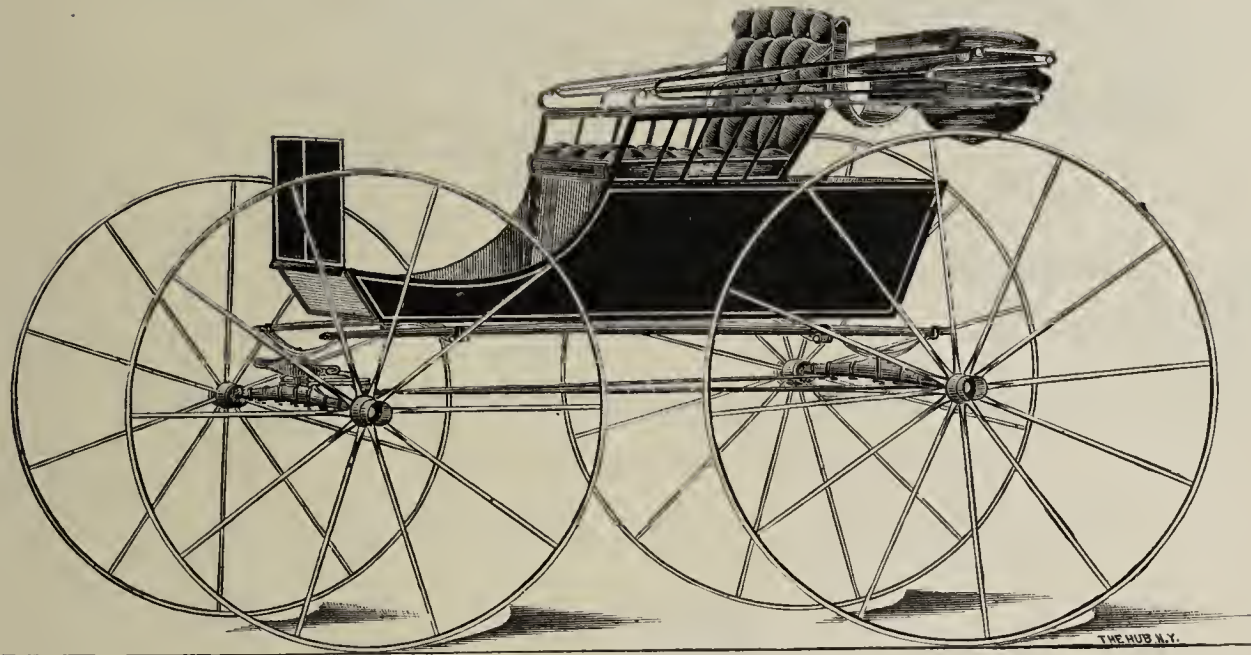


Plate No. 75. WHITECHAPEL BUGGY, WITH STICK SEAT.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 686.

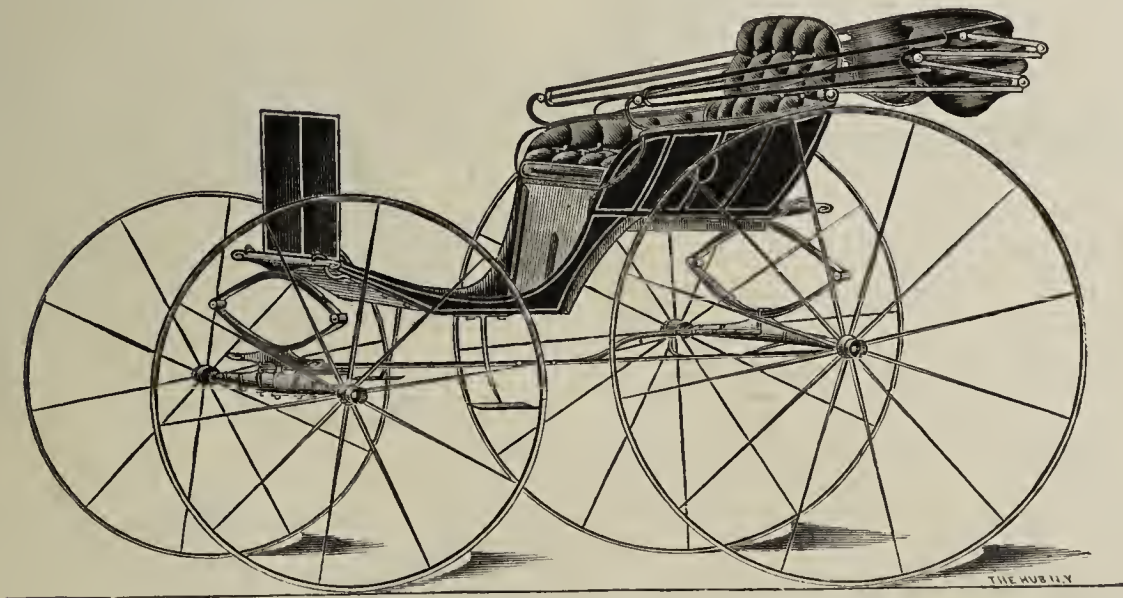


Plate No. 76. LIGHT DROP-FRONT PHAETON, ON TWO SPRINGS.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See mechanical description under "Draft-room" in this number, page 687; and also Working Draft and description of same, on pages 690 and 691.

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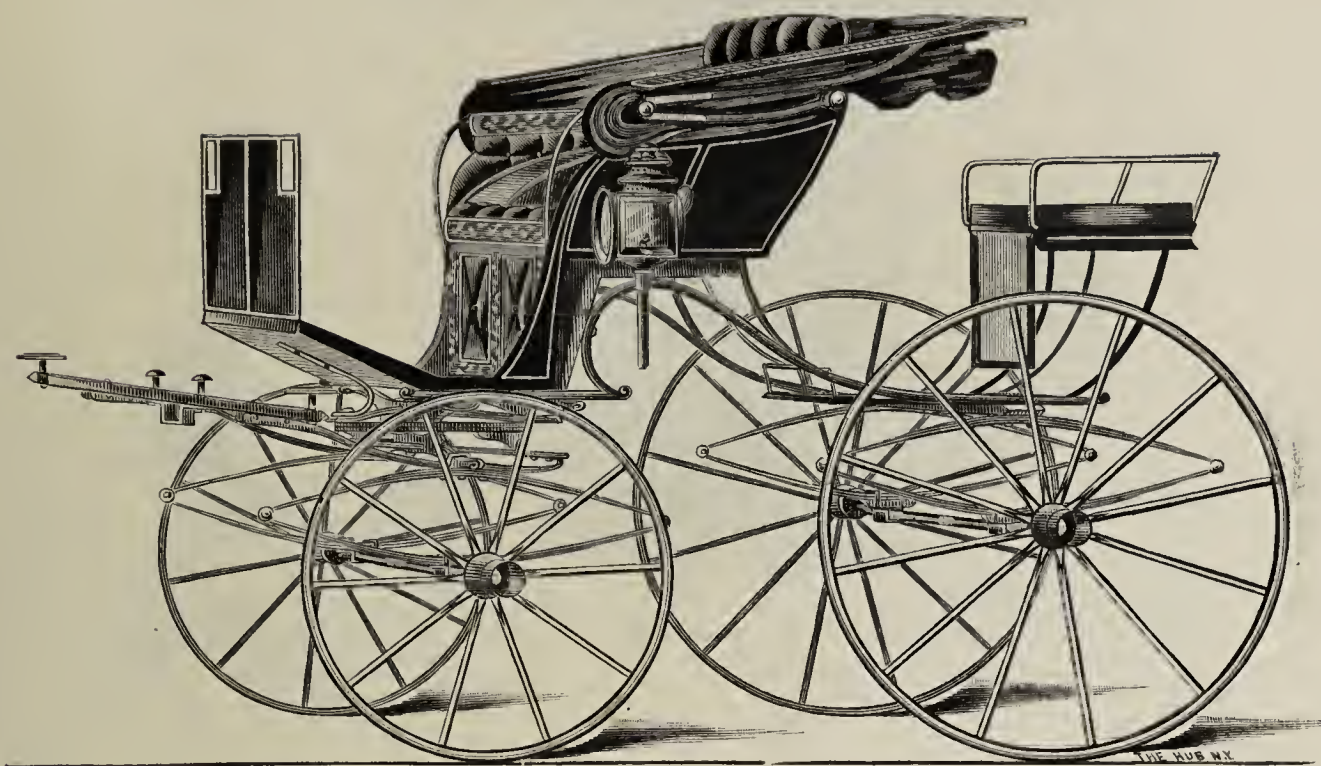


Plate No. 77. DEMAREST SPIDER PHAETON.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 687.

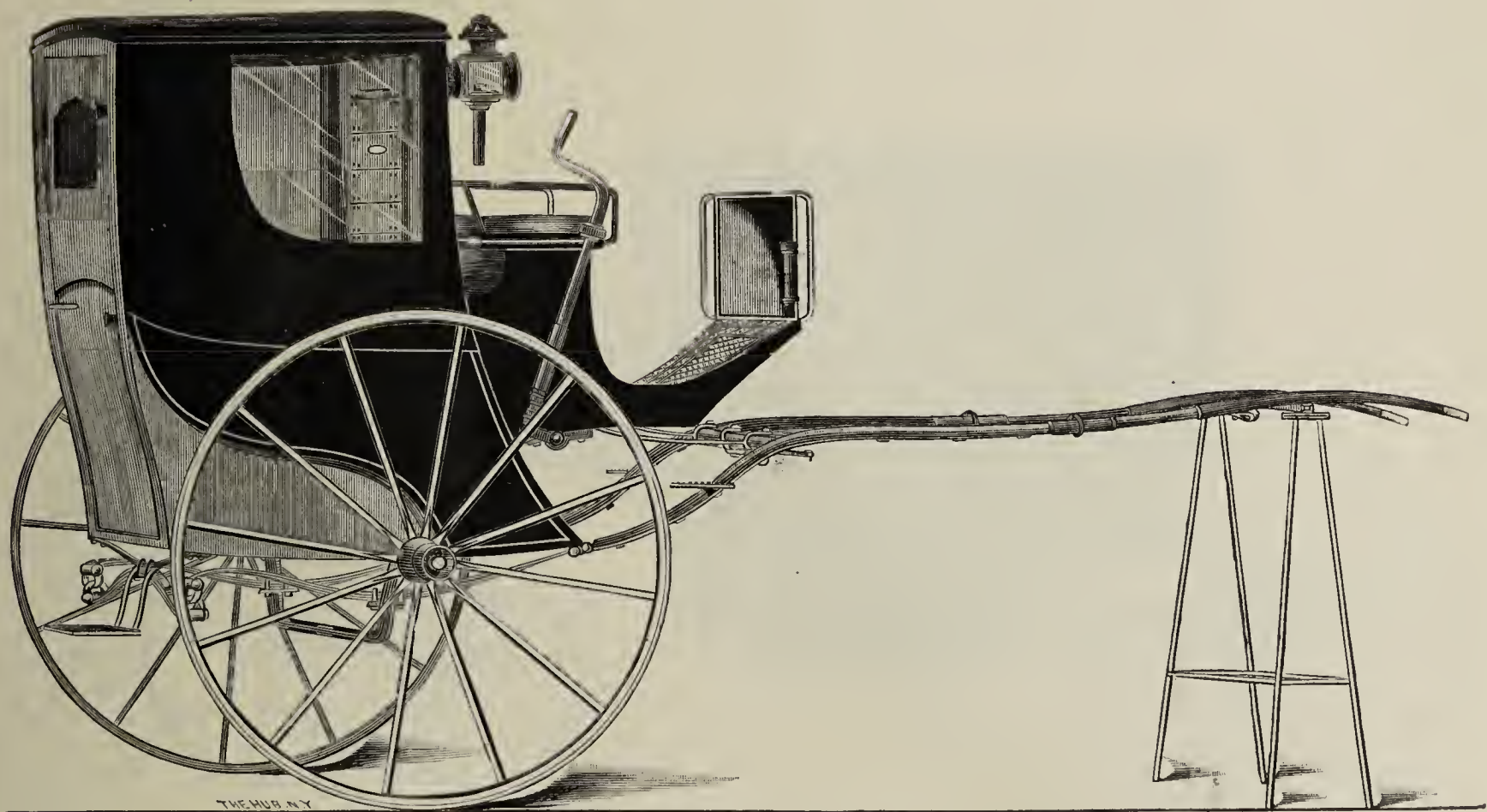


Plate No. 78. THE SEDAN CAB.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 687.



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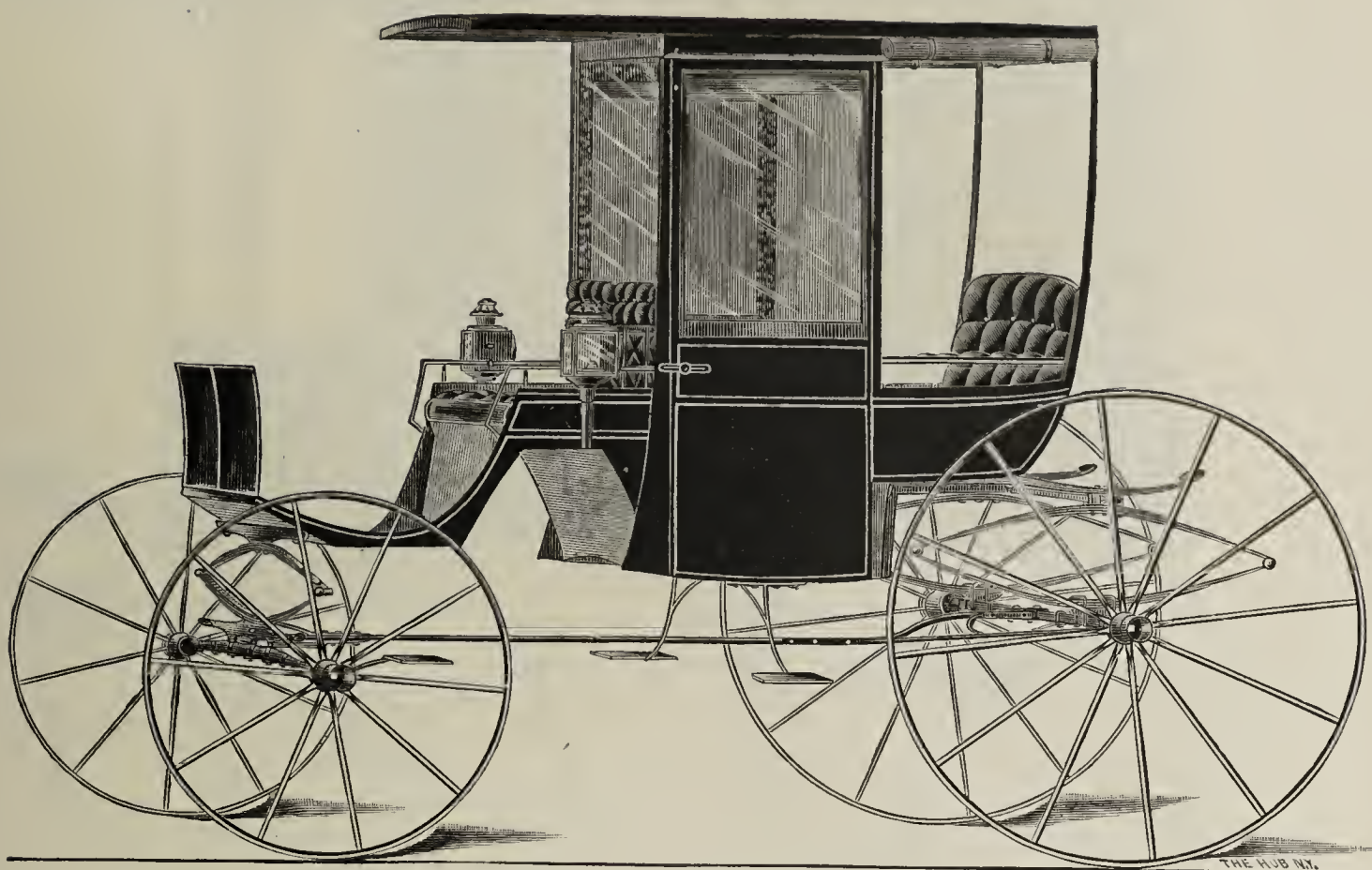


Plate No. 79. CURTAIN-QUARTER ROCKAWAY, WITH SASH DOORS.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 688.

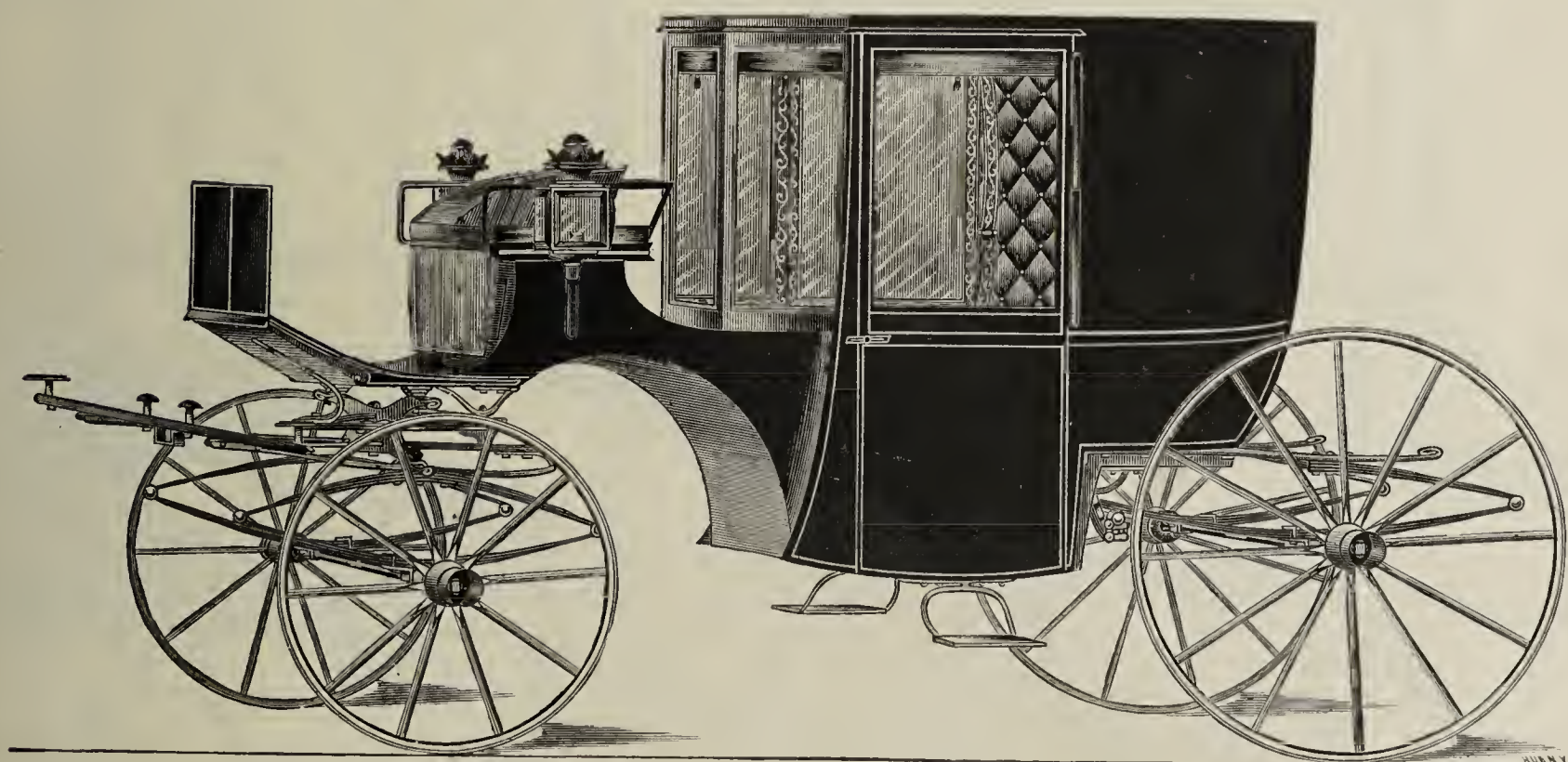


Plate No. 80. FULL-SIZE OCTAGON-FRONT COUPE.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See mechanical description under "Draft-room" in this number, page 689; and also Working Draft and description of same, on pages 692 and 693.

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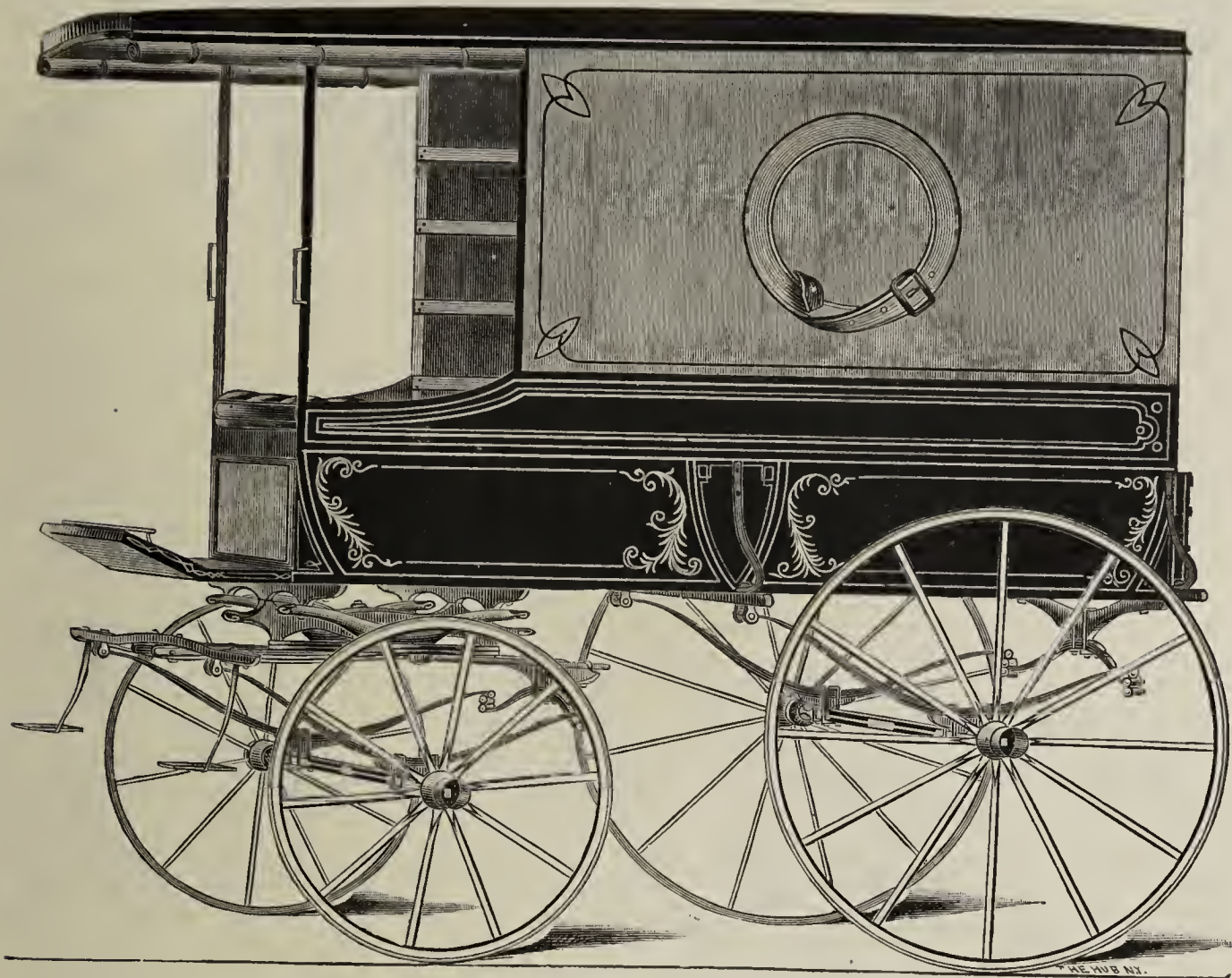


Plate No. 81. WHOLESALE GROCERY WAGON, ON PLATFORM SPRINGS.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 689.

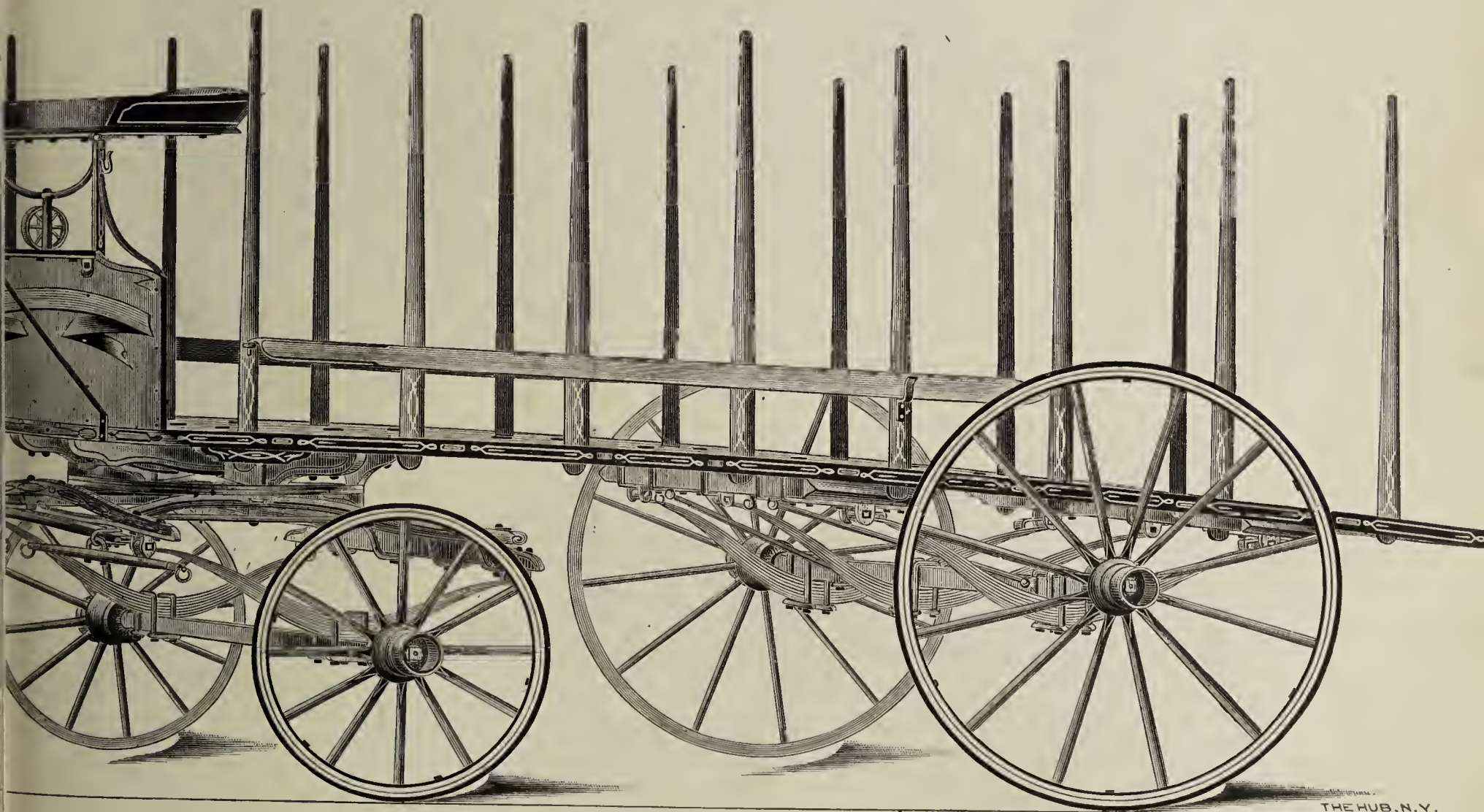


Plate No. 82. JENNINGS MERCHANDISE TRUCK.—Scale, one-half inch.

(Drawn and engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 690.

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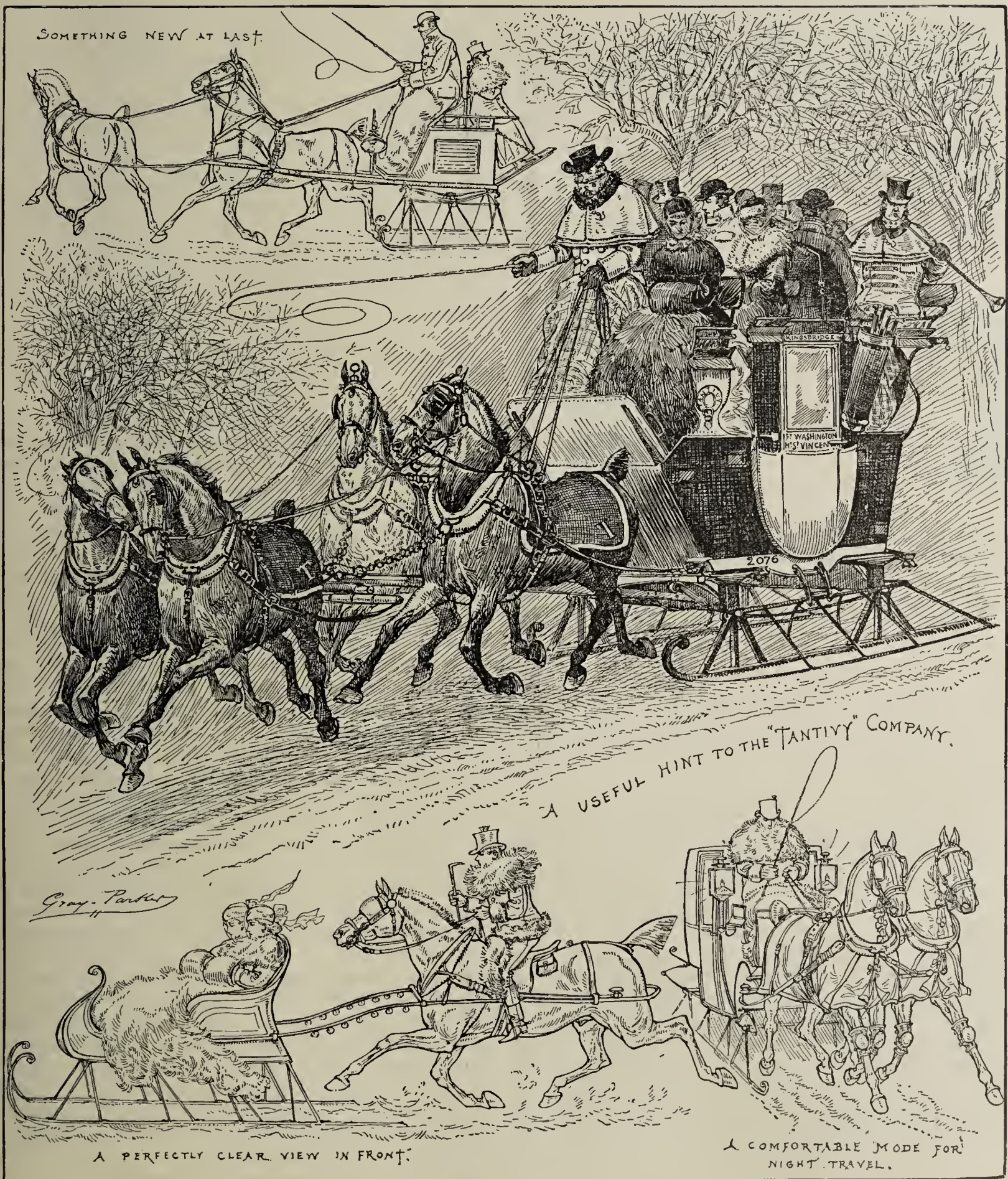
The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

DL. XXVI.

NEW-YORK, JANUARY 1, 1885.

No. 10.



CHRISTMAS AFTERNOON IN CENTRAL PARK, NEW-YORK.—BY GRAY-PARKER. FROM "LIFE."

THE HUB.

Founded in 1869, by Valentine & Company.

Devoted by the present publishers to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paint-shop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

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For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

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NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

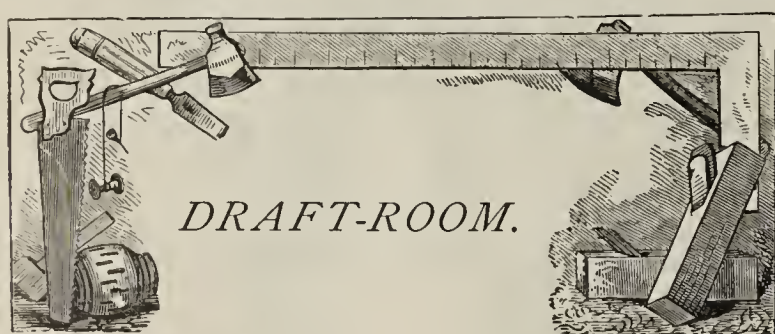
CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Agency withdrawn. Subscription price same as in America, namely, 12 shillings or \$3.00; remittances to be made to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Elysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.



DESCRIPTIONS OF FASHION PLATES.

FOUR-PASSENGER CANOPY-TOP PHAETON, WITH IMITATION WHEEL-HOUSE.

(See Colored Plate No. LV.)

IN compliance with the increasing demand for designs of this character, we have chosen for our Colored Plate, in this New-Year's number, a style of vehicle which gives evidence of growing popularity in all sections of the country.

The majority of such four-passenger phaetons, when covered at all, are now provided with a canopy top, and in this instance we have applied a standing top, with leather curtains for the sides and back, which latter better adapt it for use in inclement weather, a great advantage over ordinary canopy tops, although the simple canopy top possesses the recommendation that the vehicle can then be readily made open by merely removing the top.

The front top pillars can be made either of iron or wood, but we prefer the former, as being lighter. The front pillars are intended to approach within ¼ in. the outside of the top seat-rails, and extend to the top of the seat-frame, forming an angle at the top of the frame, and fastened to the same by a screw and bolt. To give more strength both to the pillar and seat, a T is welded to the pillar at the height of the seat-rail, to take two screws on each side; or, still better, a bolt and a screw may be used on each side. The rear pillars are fitted to the seat-rails at the rear corners, and held in position by two corner-plates, which are let in from the top of the seat-rail. To strengthen the corner, two round iron stays are placed near the pillar, extending from the seat-rail to the seat-frame.

The imitation wheel-house on the body is about 1½ in. deep. A stanhope-pillar is introduced at the front seat. The molding follows the outline of the stanhope-pillar in front, and a half-round bead can be worked on the outside of the rear face. It is optional whether the rear molding in the center of the body should be even with the seat, or whether the seat should project over the molding. A molding even with the seat will

produce the best-looking job, but necessitates somewhat more work. The joint produced at the junction of the seat and body is bridged over. The bottom sills may either be made of one piece, or the top board pieces may be framed into the bottom sills. Care must be taken to leave the bottom sills heavy enough at the wheel-house to allow of sawing out the depth of the wheel-house. It is desirable to strengthen the bottom sills by a plate, especially at the wheel-house. The body is hung on side-bars, and the J. B. Brewster spring or other similar springs may be applied, according to the custom of the builder.

Dimensions.—Width of body on top, 32½ in.; ditto bottom, 29½ in.; ditto seat on top, 41½ in.; and ditto bottom, 36½ in. Rocker-plates 1¾ × ¾ in., fastened with 1½ in. Nos. 14 and 16 screws. Height of wheels: front, 3 ft. 6 in., and rear, 3 ft. 10 in., without the tire. Depth of rims, 1⅞ in. Size of spokes, 1⅞ in. Number of spokes, 14. Stagger of spokes, ⅝ in. Hubs, 4¼ in. diameter. Size of front bands, 2 in.; and back, 3⅞ in., inside diameter. Length of front bands, 1¾ in. Length of hubs, 6½ in. Tire, 1 × ⅞ in., round edge steel.

The front end-spring is 33¾ in. long between the outside holes, with 2½ in. set over all. Width of steel, 1½ in. Number of plates, four, namely: the first three No. 3, and the last No. 4 steel. The rear end-spring is of the same length and set as the front one. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, and the rest No. 3 steel.

The front cross-spring is 34 in. long, from out to out, with 3½ in. set over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. The rear body-spring is of the same length as the front one, with 3¾ in. set over all. Width of steel, 1½ in. Number of plates, four, namely: the first two No. 2, and the other two No. 3 steel. Axles, 1⅞ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body, black, and running-gear, carmine, with two stripes of black. Trimming, green cloth throughout. The block pattern is used for the cushion tops. The lazy-backs are trimmed plain. The falls have two raisers made of cloth, one about ⅞ in. wide around the outer edge, and the other at about 2 in. distance. Carpet, green, with red figures. Mountings, silver.

WHITECHAPEL BUGGY, WITH STICK-SEAT.

(See Fashion Plate No. 75.)

ALTHOUGH the Whitechapel Buggy is naturally in no such demand as the Piano-box Buggy, it is nevertheless called for in large and increasing numbers, and holds the decided lead in respect to style.

The design shown in our present Fashion Plate will make a neat and salable vehicle. The stick seat adds to its attractiveness, though a padded seat can readily be substituted if preferred. The moldings to the body are glued on by clamps, and should not be thicker than ⅞ in. The outside is then slightly rounded, and a few nails are put in afterwards. The panels are ⅞ in. thick, but are lightened toward the top from the inside to about ¼ in. The outside of the body on the sides is rounded about ⅞ in. lengthwise, which should of course be done before the moldings are put on. The framework of the body is light, and must be made of good material, and be carefully framed. For the bottom sill, 1¾ in. will be sufficient. The uprights are ¾ in. thick, by ⅝ and ⅞ in. wide. The rear corner-blocks are 1 in. square, and the front corner-blocks, ¾ × 1⅞ in. The frame-pieces on the body, for fastening the seat, are ¾ × 1¼ in. The stick-seat has square corners, and the sticks are V-shaped and made very light, ⅝ × ½ in. white hickory being preferable for such sticks. The seat-frame pieces are ⅝ in. thick. The end-pieces are 3½ in. wide; the rear piece 3½ in.; and the front piece 2½ in. wide. The top seat-rails are ⅝ × ¾ in., and the corner-pieces front and rear, ¾ in. square. The seat projects over the body 1½ in. The moldings on the body at the front end of the seat should be made even with the seat, and then lightened to ⅝ in. thick toward the front, and if this method is adopted, we would advise making the molding nearest the body ⅞ in. wide, lightened to ⅝ in. outside.

Dimensions.—Width of body on top, 30 in.; ditto bottom, 27 in.; ditto seat on top, 38 in.; and ditto bottom, 33 in. Height of wheels: front, 3 ft. 8 in.; and rear, 3 ft. 11 in., without the tire. Depth of rims, 1⅞ in. Size of spokes, 1⅞ in. Number of spokes, 14. Stagger of spokes, ⅝ in. Hubs, 3½ in. diameter. Front bands, 2 in., and the back, 2½ in., inside diameter. Length of front bands, 1½ in. Length of hubs, 6 in. Tire, ⅞ × ⅞ in., round edge steel.

The front end-springs are 31¼ in. long, between the outside holes, with 2¼ in. set over all. Width of steel, 1¼ in. Number of plates, three, namely: the first No. 3, and the last two No. 4 steel. The rear end-spring is of the same length as the front spring, with the same width of steel and same number of plates, but all of No. 3 steel.

The front body-spring is 31¼ in. long, from out to out, with 2½ in. set over all. Width of steel, 1¼ in. Number of plates, three, all No. 3 steel. The rear body-spring is of the same length as the front spring

has $2\frac{3}{4}$ in. set over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, namely: the first three No. 3, and the last No. 4 steel. Track, 4 ft. 5 in., from out to out.

Finish.—Painting of the body and seat, black; and running-gear, dark green, striped with two fine lines of canary yellow. Trimming, blue cloth. The back is trimmed with a row of biscuits on top, and a row of piping and a second row of biscuits at the bottom. The cushion top is also finished with biscuits. The top and bottom edges of the cushion are finished with a welt of blue cloth. The fall is finished with a raiser and the edge, $\frac{7}{8}$ in. wide, and another raiser $\frac{3}{8}$ in. wide, about 2 in. from the outside one, both of which are made of blue cloth. Carpet, plain blue. Mountings, brass.

LIGHT DROP-FRONT PHAETON, ON TWO SPRINGS.

(See Fashion Plate No. 76, and also Working Drawing of Body and description of same, pages 690 and 691.)

THIS design is representative of a class of vehicles that admit of numerous variations in outline, and these variations are not confined to the outline of the body alone, but also include the style of the top, which may have three or four bows, or side curtains to roll up, or be a close canopy or umbrella top. The canopy and umbrella tops are of no use intended merely as a protection from the sun, while three or four side curtains are useful in inclement weather by fastening the side curtains to the top.

Marked variations can also be made in the character of the running-gear, by suspension on two elliptic springs, as shown in our drawing, or on three or four elliptic springs. The seats can also be made in a variety of styles,—for instance, with sticks all around, or with sticks on the sides and a panel back (as shown in our Fashion Plate No. 50, October number), or with solid sides, as shown in Fashion Plate No. 43, September number, and plate No. 76 in this number. The sides of the seats are either left plain, where cheapness is desired, or made with moldings and the edges only, or with the sides divided into four spaces by moldings, as shown in this plate. The number of the moldings is optional with the manufacturer. Some bodies are made with but one molding on each side, centered by a medallion; and some with two moldings, and, if a medallion is desired, it is introduced on the molding nearest the rear. Others, again, are made with moldings on the sides, but not at the rear, or with moldings on both the sides and rear. In the latter case, the center molding at the rear is furnished with a medallion similar to that on the sides. Imitation canework is sometimes adopted as a finish for both the sides and back.

The running-gear can be made very light. The front axle-bed is set $1\frac{1}{2}$ in. down, while the rear axle-bed is swept upward $\frac{7}{8}$ in. The chassis is made of bent wood.

In view of the fact that we have recently received numerous inquiries for a working draft of such a body, we take this opportunity of publishing one of this particular job, in the drafting department of this number, and will also be found a list of the principal dimensions of the body.

Dimensions.—Height of front wheels, 3 ft., and rear, 3 ft. 8 in. Depth of fenders, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{16}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{3}{8}$ in. diameter. Front bands, 2 in., and back, $2\frac{5}{8}$ in. diameter. Length of front bands, $1\frac{5}{8}$ in. Length of rear bands, 6 in. Tire, $\frac{7}{8} \times \frac{1}{8}$ in., round edge steel.

The front spring is elliptic, 36 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, namely: the first two No. 3, and the last No. 4 steel. Holes apart, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The rear spring is elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first two No. 3, and the last two No. 4 steel. Holes apart on the top half, $3\frac{1}{4}$ in. Size of holes, $\frac{5}{16}$ in. The bottom half is clipped to the axle-bed. Axles, $\frac{7}{8}$ in. Track, 4 ft. 5 in., from out to out.

Finish.—Painting of the body on the seat, between the moldings, dark green; and moldings, black. Running-gear, blue, with two stout lines of canary yellow. Trimming, blue cloth. The back has two rows of biscuits, and is finished with a roll of squares on the top, followed by a row of piping, and two rows of squares. The cushion top is laid off in squares. Broad-lace is used for the cushion front. The fall is quilted in the center, and the quilting inclosed by a raiser $\frac{1}{2}$ in. wide, made of blue cloth. The quilted part of the fall is laid off in squares. Another raiser introduced around the edges of the fall, about $\frac{7}{8}$ in. wide, and made of blue cloth. Carpet, blue, with yellow figures. Mountings, brass.

DEMAREST SPIDER PHAETON.

(See Fashion Plate No. 77.)

THIS Fashion Plate illustrates one of the latest productions of the firm of Messrs. A. T. Demarest & Co., of New-York, now on exhibi-

tion at their repository, Nos. 636 and 638 Broadway, and forming one of the most attractive of the many fine vehicles now offered by them for inspection. Our sketch and specifications were taken from the original phaeton by consent of the makers, for which we are greatly obliged. This firm's factory is located on Chapel-st., in New-Haven, in the building formerly occupied by Messrs. Lawrence, Bradley & Pardee, where the manufacturing department is carried on under the title of A. T. & C. B. Demarest.

The Spider Phaeton, as a vehicle for gentlemen's driving, enjoys no such prestige as the T-cart, but it has unquestionably grown steadily in public favor, as is proved by the increasing numbers seen in the ware-rooms and on the fashionable drives of the larger cities.

One leading characteristic of the design here illustrated is the back, which inclines toward the ogee sweep. The front pillar of the seat also differs from others in common use on such bodies, but was much in vogue several years ago on Cabriolets, being afterward superseded by a finishing piece, with a full sweep extending (when first introduced) to the bottom of the driver's-seat, but subsequently reduced to within 12 in. from the top of the boot, and ending in a scroll. At present there is a tendency to return to the style of the pillar first mentioned, and it is this which is represented in our drawing.

The sides of the body are made of framework, and the panel is put into a groove, which, however, is not peremptory, as solid sides may be used with equal propriety. In the latter case, the moldings are worked on. Each side panel is divided into two parts, divided by a molding having a medallion in the center. The same finish is also introduced on the back panel.

Each body-loop or crane-iron is made of one piece, and requires great skill on the part of the smith. These commence under the horizontal part of the front rocker, and end in a scroll at each end. The curved part of each loop iron is welded to the horizontal bar, forming a continuous sweep with the scroll. The stay supporting the rear part of the seat is also welded to the loop iron, but is considerably lighter. This seat support is bolted to the rear cross-bar.

The bottom frame for the rumble is bolted to the top of the back spring-bar, and the front end of the frame is supported by an iron stay, bolted to the bottom of this frame and to the cross-bar of the body. The edges of the frame are finished off by a fluted molding.

The carriage-part is light and graceful in both its iron and wood parts. The rear axle is cranked 1 in.

Dimensions.—Width of body on top at the front pillar, $46\frac{1}{2}$ in.; ditto bottom of seat, $42\frac{1}{2}$ in.; ditto back on top, $41\frac{3}{4}$ in.; ditto bottom of back, $38\frac{1}{4}$ in.; ditto dash, $36\frac{1}{2}$ in.; and ditto rumble, 2 ft. Turn-under, 5 in. Rocker-plates, $1\frac{3}{4} \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Height of wheels: front, 2 ft. 10 in., and rear, 3 ft. 8 in., without the tire. Depth of rims, $1\frac{3}{4}$ in. Size of spokes, $1\frac{1}{16}$ in. Number of spokes, 12 and 14 in., with no stagger. Hubs, $6\frac{1}{2}$ in. diameter. Front bands, $4\frac{1}{4}$ in., and back, 5 in. inside diameter. Length of front bands, 2 in. Length of hubs, 7 in. Tire, $1\frac{3}{8} \times \frac{7}{16}$ in., round-edge steel.

The front springs are elliptic, 39 in. long, from out to out, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{5}{16}$ in. The rear springs are elliptic, $38\frac{1}{2}$ in. long, from out to out, with $9\frac{3}{4}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first three No. 2, and the last No. 3 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{4}$ in., Collinge patent. Track, 4 ft. 3 in., from out to out.

Finish.—Painting of the body-panels, dark green; and moldings and the rest of the body, black. The moldings are striped with a fine line of white. Running-gear, dark green, with two light stripes of yellow at a distance, and a fine white line in the center. Trimming, green cloth. The quilted work of the back is laid off in four rows of squares. The cushion top is laid off with the same design as the back. The front of the cushion is covered with broad-lace. The fall is edged with broad-lace, and divided into two halves by broad-lace. Two raisers, about $\frac{1}{8}$ in. wide, cross the fall diagonally. A large tuft in the center forms a beautiful finish. Carpet, plain green, for both the body and rumble. Mountings, silver.

We would add that the drafts of all vehicles built by the firm of A. T. Demarest & Co., are made by Mr. James P. Barker, who acts as foreman of the body-shop, and superintends the suspension of all the work.

THE SEDAN CAB.

(See Fashion Plate No. 78.)

THE increasing demand for public cabs is at present stimulating the inventive genius of many American manufacturers, and the latest novelty in this line is the one illustrated in the accompanying Fashion Plate, for both drawing and dimensions of which we are indebted to the inventor

and patentee, Mr. Chauncey Thomas, of Boston, Mass., who is now constructing a number of cabs of this new and striking pattern.

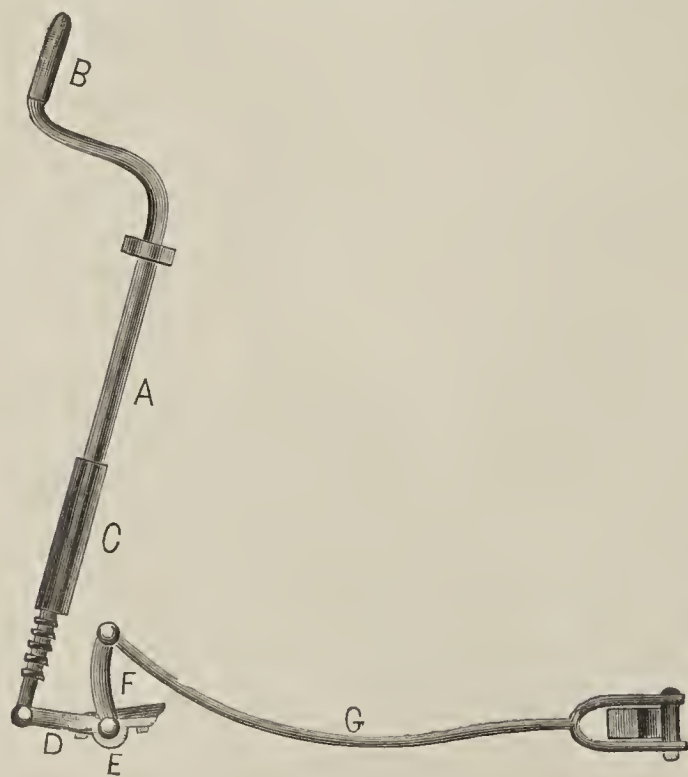
In this design the driver's-seat is introduced in front of the body, instead of at the rear as in the Hansom Cab, which cannot but be considered preferable in many respects, and particularly because it gives the driver better control of his horses. The entrance is at the rear, which is another improvement over the Hansom Cab, on the grounds both of convenience and safety.

The seat for the passengers is divided into two parts, which are hinged to the sides, and, when let down into place, form a continuous cross seat-board, allowing the occupants to face frontward, as in an ordinary Coupé. When the door is opened for entrance or egress, the two sections of the seat are raised. At this point the question naturally arises whether the door, when closed, can be considered a secure rest for the backs of passengers. Mr. Thomas assures us that there is no danger to be feared from this source, as the door is secured by three different methods, including a patented device placed near the bottom of the door, which effectually prevents accidental opening.

The tinted portion on the side of the body represents a recess, which sets in 2 in. from the molding. The driver's-seat is brought as close as possible to the body. The center of the body in front has an upholstered back, the width of the driver's-seat; and the remaining space on either side, from there to the coupé-pillar, is filled by a light. The axle is cranked about 10 in., thus allowing plenty of space for the settling of the body. The springs rest on a solid bracket or flap, 5 in. from the top of the axle.

An original device, and, we think, a good one, is attached to the bottom of the driver's-seat and shafts, for balancing the body to suit varying loads and in ascending or descending inclines. This may be briefly described as follows:

The shafts, as will be noticed, are fastened at the front end of the spring to an elongated shackle extending from the spring-head. Two iron stays, each forming a prong at the shaft-bar, are fastened to a spring in front of the shaft-bar. These stays are connected to a lever, which is fastened to an iron bar running across the body. The iron bar rests in sockets, which are bolted to the bottom of the body. The vertical rod on the outside of the body, which operates the cross or horizontal rod and the levers, has a thread near the bottom end, and passes through a cylinder, also provided with a thread. Another iron is fastened to the top of the driver's-seat, forming an eye on the outside, through which the perpendicular rod passes. By causing the outside rod to move in an upward direction, the short lever outside of the body follows the movement of the rod, and turns the cross rod, which, in turn, causes the short lever on the inside of the boot to make a downward movement. The iron stays are connected with the lever, and the shaft bars follow the movement, and press on the shafts. The shafts are held in position in front by the horse, and in a pivot at the spring, which will result in causing the body to elevate in front. By the use of this ingenious contrivance, the body can always be balanced or kept on a level.



For a better illustration of this device, we introduce here a special cut, wherein A represents the vertical rod; B, the handle; C, the cylinder; D, the outside short lever; E, the end view of the cross rod; F, the inside short lever; and G, the stays connecting the shafts with the lever.

Dimensions.—Width of body, back, 46 in. Width of sunken back, 42 in.; width of boot, 24 in. Height of wheels, 4 ft. 6 in., without the tire. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{3}{4}$ in. Thickness of spokes at the square end, $1\frac{1}{4}$ in. Number of spokes, 14. Stagger of spokes, $\frac{1}{2}$ in. Hubs, $6\frac{1}{2}$ in. diameter. Front bands, $4\frac{1}{2}$ in., and back, $5\frac{3}{4}$ in., inside diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, $8\frac{1}{2}$ in. Tire, $1\frac{5}{8} \times \frac{1}{2}$ in.

The side-springs are 42 in. long, from out to out, with $3\frac{1}{2}$ in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, six, namely: the first three No. 2, and the last three No. 3 steel. The length of the cross spring is 44 in. over all, with 6 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, six, namely: the first four No. 2, and the last two No. 3 steel. Axles, $1\frac{5}{8}$ in. Track, 5 ft., from out to out.

Finish.—Painting of the lower quarters and door panels, dark blue and upper quarters, upper doors, recess boot panel and moldings, black. The moldings are striped with a fine line of Naples yellow. Running gear, dark blue, with two narrow stripes of Naples yellow. Trimming, blue French skins, and blue carpet. The top is sheathed with cherry. Mountings, brass.

CURTAIN-QUARTER ROCKAWAY, WITH SASH DOORS.

(See Fashion Plate No. 79.)

Few, if any, warerooms of American carriage-builders lack one more specimen of light Rockaways, made either with glasses in the rear quarters, or with curtains as shown in the accompanying Fashion Plate.

Great numbers of Rockaways, of widely varying styles and sizes, may always be seen in the thoroughfares and parks of this city, and while many of these are highly creditable specimens of fine workmanship, the majority, in our opinion, are neither well designed and proportioned, nor properly finished. The most common defect we notice is in the rear quarters, which are either too low for the length, or too short for the height. The front seats of Rockaways built here and in New-Haven generally have good depth horizontally, but are not of great height. In the case of a front seat such lack of proportion may not detract very perceptibly from the general appearance of the vehicle, but it would prove highly objectionable in case of the rear quarters. In cities located further South, the panels of the front seats are made of about the same height as here, but shorter, which we think preferable; and we have therefore introduced the shorter seat in our drawing.

Movable fronts are seldom applied to Rockaways having curtain quarters, but as such fronts sometimes have to be introduced after the carriage has been finished, in order to satisfy the demand of the purchaser, we would advise builders, as a rule, to avoid rounding off the corner produced by the front and inside faces of the coupé-pillar. Occasionally a storm curtain is supplied as a substitute for a front. This curtain is fastened on top to an iron rail, $\frac{1}{8}$ in. thick by $\frac{7}{8}$ in. wide. The rail forms hooks at both ends, which slide into screw-eyes fastened to the inside of the top rail. The curtain is then fastened to the front of the coupé-pillar by knobs.

The rear quarter-panel is put into a groove all round. In several shops it is now customary to use thick whitewood instead of a thin panel, and the moldings are then worked out. This method is claimed to be cheaper than the preceding, but we must confess that we fail to discover any advantage in this direction, and the construction of such bodies should preferably be kept as simple as possible just at present, in view of the low prices now current, and while manufacturers claim, with apparent justice, that they cannot afford to pay better wages.

The rear panel at the wheel-house does not follow the shape of the rocker. This we show in the drawing. The front panel, however, is rabbeted into the rocker. The front seat-bottom forms the top panel of the wheel-house. The finish at the front of the front seat consists of a molding about 1 in. wide at the top of the seat, which decreases to a width of $\frac{1}{2}$ in. toward the dash, and is slightly rounded on the outside. The same finish is applied to all other moldings on this body.

One objection to the use of sash or high doors with curtain Rockaways is the height of the door panel, which is commonly rather out of proportion with other parts of the body. We have endeavored to avoid this defect as far as possible by fastening an extra piece under the top rail, thereby reducing the door-panel about $1\frac{1}{4}$ in. For some years past a top door piece has been used, and this was in some instances 5×6 in. high, to reduce the high appearance of the panel; these pieces were either molded off, or a piece was sawed out and a glass inserted. The latter method, however, was not favorably received, as the frequent breaking of the glasses proved both annoying and expensive.

Dimensions.—Width of body at hinge-pillar, $47\frac{1}{2}$ in.; ditto at lock pillar, $45\frac{1}{2}$ in.; at rear corner-pillar, 40 in.; and at dash, 34 in. Turn under, 3 in. Rocker-plates, $2 \times \frac{1}{2}$ in., fastened with $1\frac{1}{2}$ in. Nos. 10 and 16 screws. Height of front wheels, 3 ft. 1 in., and rear, 4 ft., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $4\frac{3}{8}$ in. diameter. Front bands, $2\frac{3}{4}$ in., and back, $3\frac{3}{8}$ in., inside diameter. Tire, $1 \times \frac{1}{4}$ in., round edge steel.

The front spring is elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five.

namely: the first No. 2, the next two No. 3, and the last two No. 4 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{5}{16}$ in. The rear springs are elliptic, 37 in. long, from out to out, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first three No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{1}{4}$ in., steel. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body-panels, dark green; and moldings, black, with no striping. Running-gear, dark green, with two round lines of black. Trimming, green morocco for the quilted work, and green cloth for the head-lining. The upholstering on the back of the rear seat is made of a combination of squares and piping, while on the fashion tops squares only are used. These squares ought to be of fair size, to insure a soft cushion. The doors are trimmed plain, and no broad-lace is used. The edges are finished with a welt of the same material as the trimming of the door. A few tufts may be introduced in the middle of the door. The falls are made plain, and likewise but one raiser around the edge, about $\frac{7}{8}$ in. wide. Carpet, green, with black figures. Mountings, silver.

FULL-SIZE OCTAGON-FRONT COUPÉ.

(See Fashion Plate No. 80; also Working Draft of Body and description of same on pages 692 and 693.)

THE accompanying Fashion Plate represents a standard style of Coupé, built at present by all our principal manufacturers engaged on this class of work. In general appearance it does not differ to any great extent from other similar patterns previously published by us, but the proportions are somewhat changed, while slight variations have been made in the outlines of the boot and coupé-pillar, and the boot is lower. The Octagon-front Coupé enjoys at present considerable popularity, which we think its convenience fully justifies, for it fulfills nearly all the conditions of a Coach, providing the extended front is of fair proportion, as in this drawing; and the vehicle is of course considerably lighter and less expensive than a Coach.

It is supplied in many different sizes. In some specimens the extension is not more than 6 in. in front of the coupé-pillar, and it ranges from that figure to 11 in., which latter is shown in our illustration. In the smaller sizes the front seat can only be utilized for children, but in our design it affords comfortable seat-room for two grown persons. It may either be made stationary, and hinged to the front back.

The front glass-frame is in most cases made to drop, and the front quarter glasses are stored in the boot. The latter are generally inserted in their berths from the inside of the body, but the same result could equally well be effected from the outside, if preferred. Practical suggestions on this important subject, accompanied by illustrations, form a part of the description of the working draft of the body of this same vehicle, which will be found on pages 692 and 693.

A particularly creditable specimen of Octagon-front came recently to our notice in the wareroom of a celebrated carriage-builder in Brooklyn. In this instance the extension was not large, and the front glass-frame was movable, but could not be dropped. The glass-frames to the front quarters were hinged to the front corner-pillars, and folded against the front glass.

Dimensions.—The dimensions of the body will be found included with the description of the working draft presented on page 692. The other principal dimensions are as follows. Height of wheels: front, 2 ft. 11 in., and rear, 3 ft. 8 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{5}{8}$ in. Hubs: front, 6 in., and rear, $6\frac{1}{4}$ in. diameter. Front bands for front hubs, $4\frac{1}{8}$ in.; and back, $4\frac{7}{8}$ in., inside diameter. Front bands for rear hubs, $4\frac{3}{8}$ in.; and back, $5\frac{1}{8}$ in. inside diameter. Length of front bands, 2 in. Length of hubs, 7 in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round edge steel.

The front springs are elliptic, 38 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in.

The rear springs are platform. Side-springs, 41 in. long, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, the next No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Cross-spring, 39½ in. long, from center to center, with $4\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the next two No. 3 steel. Axles, front, $1\frac{1}{4}$ in., and rear, $1\frac{5}{8}$ in., Collinge patent. Track: front, 4 ft., and rear, 4 ft. 8 in., from out to out.

Finish.—Painting of lower quarters, doors and back lower panel, dark blue; and moldings, upper quarters, back and boot panels, black. Running-gear, blue, striped with three round lines of light blue. Trimming, blue goatskin for the lower backs and cushions; and blue satin for the lower and upper quarters, back and head-lining. The diamond

figures are exclusively used in the upholstery. Broad-lace is used for the cushion facings and around the top rails and falls. On the falls the space between the broad-lace frame is plaited; and the door is also edged with broad-lace, and quilted inside of that, in the form of diamonds. The trimming on the front back is the same as on the rear back. The driver's-seat is trimmed plain with blue cloth. Carpet, dark blue, with light blue figures. Mountings, silver.

WHOLESALE GROCERY WAGON, ON PLATFORM SPRINGS.

(See Fashion Plate No. 81.)

WAGONS of this pattern, as built in New-York, are mainly used for the delivery of groceries from the wholesale dealer to retailers, but they are by no means confined to the transportation of groceries alone, as they are equally adapted to a variety of other purposes. Many variations of this style are made, including a great number of the regular express-wagon type, with framework on the outside, which is chamfered, and the panel fastened from the inside. Many others closely resemble our Fashion Plate in general outlines, but are differently molded. The tops on such wagons are either stationary, or made to shift. The one represented in our drawing is intended to be stationary.

Each side-board of the body can be made of one piece, or, if boards of sufficient width cannot readily be obtained, then two boards may be used, the joint being covered by a molding. These boards are either fastened to the outside of the sill or on top. In the latter case the bottom sill projects $\frac{1}{4}$ in. over the side-boards, in order to render the joint less noticeable. Iron plates are riveted at intervals to the inside of the side boards, and these project sufficiently over the bottom edge of the board so as to reach through the sill and receive a nut. Holes are bored through the sill at the proper places, and the board is placed on top of the sill and held in position by the plates, which are then secured by tightening the nuts.

The finish of the sides varies widely. Some are extremely plain, and have the moldings merely suggested by striping. Others have the sides elaborately molded, with one fastened at the ends, and top and bottom. Others, again, are finished with a straight molding on top, and with a canoe-shaped lower molding. In all such styles the space lengthwise between the moldings is not divided. It will be noticed that the method of molding which we have adopted differs from all the foregoing, and we consider it well worth imitation. Each side is divided into two spaces; and to bring out the proper effect, much depends on the painting. We would advise painting in black both the moldings and the small space between the moldings in the center; and then to finish the panels formed by the moldings on the top and bottom sections in some bright color.

The uprights are let into the upper section of the side even with the inside of the side-boards. The top consists of two top-rails, two end curves, and eleven intervening curves, the whole being covered with enameled duck. The sides of the top are covered with white duck or black canvas, but may be paneled if preferred. In either case, slats are fastened to the uprights on the inside, to prevent the sides from being bruised. The seat is composed of a board only, which rests on slats screwed to the sides of the body. A box is made under the seat, for storing blankets, wrenches, etc.

Dimensions.—Width of body, 47 in., from out to out. Height of wheels: front, 3 ft., and rear, 4 ft., without the tire. Depth of rims, $2\frac{1}{2}$ in. Size of spokes, $2\frac{1}{4}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $7\frac{3}{8}$ in. diameter. Front bands, $5\frac{1}{2}$ in., and back, 6 in., inside diameter. Length of front bands, 2 in. Length of hubs, 9 in. Tire, $1\frac{5}{8} \times \frac{3}{4}$ in.

The front springs are platform. Side-springs, 42 in. long, with 8 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, seven, namely: the first four No. 2, and the other three No. 3 steel. Cross-spring, 42½ in. long, from center to center, with 5 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, seven, namely: the first four No. 2, and the other three No. 3 steel.

The rear springs are platform. Side-springs, 42 in. long, from out to out, with 9 in. set over all. Width of steel, $2\frac{1}{2}$ in. Number of plates, seven, all No. 2 steel. Cross-spring, 42½ in. long, from out to out, with $6\frac{1}{2}$ in. set over all. Number of plates, seven, all No. 2 steel. Axles, $1\frac{3}{4}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of lower panels between the moldings, dark green; and moldings, black. Upper panels, carmine. The striping for both sections is black and gold. The sides and back of the top are usually made of black-enameled duck, with lettering in gold. White duck is also frequently used, and is then painted in cream color, and lettered in strongly contrasting colors; we decidedly prefer the black top, as it contrasts better with the body, and gives a richer effect. Running-gear, carmine, with two medium stripes of black at a distance, and a medium line in the center.

JENNINGS MERCHANDISE TRUCK.

(See Fashion Plate No. 82.)

NEW-YORK is probably the only American city where there is a regular demand for trucks of such large dimensions as the one represented in this design,—a pattern which has often been built with a carrying capacity of seven tons and more. To convey such a load, powerful horses are required, and it is here that the Normandy stallions find a place to fill, two such proving far more useful than an ordinary four-horse team.

The bodies of such trucks, as built in the different shops, do not vary materially, but it is otherwise with the running-gear, where nearly every builder has peculiarities of his own in both the plan of construction and its details. The job illustrated in our Fashion Plate was made by Mr. Joseph J. Jennings, of Nos. 79 to 83 Eldridge-street, New-York City, who ranks high among builders of this class of vehicles. Mr. Jennings goes to work as follows:

The body frame consists of five sills and eight cross-bars. The up-rights or seat supports are framed into the front cross-bar and are strengthened by plates. The top section of the gear, as made by him, is constructed differently from all others, having two cross-bars only, one in the center of the fifth-wheel, and the other at the rear. Two bars, running parallel with the sills, and extending from the front of the body to some distance back of the center bar, are let in from the top of the center bar. These parallel bars rest in front on a light bar which is bolted on top of the fifth-wheel. Two half-springs are used on the front gear and three on the hind gear, as represented by the drawing.

Dimensions.—Width of body, 63 in. Height of front wheels, 3 ft. 2 in.; and rear, 4 ft. 8 in., without the tire. Depth of rims for the front wheels, $2\frac{3}{4}$ in.; and rear, $3\frac{1}{4}$ in. Size of spokes, $2\frac{1}{2}$ in front, and rear, 3 in. The wheels are of the Sarven patent. Tire: front, $2\frac{1}{2} \times 1$ in., and rear, $2\frac{3}{4} \times 1$ in.

The half-springs in front are 52 in. long, from out to out, with 9 in. set over all. Width of steel, 3 in. Number of plates, sixteen, namely: ten No. 2, and the rest No. 3 steel. The rear springs are 54 in. long, from out to out, with 14 in. set over all. Width of steel, 3 in. Number of plates, eighteen, all No. 2 steel. Track, 6 ft. 5 in., from out to out.

Finish.—Painting of both body and running-gear, red. The body is finished with narrow stripes of black, and fine lines of white; and the running-gear has two narrow stripes of black at a distance, and a fine line of white between.

WANTED: A WAGONET.

GRAND RAPIDS, MICH., Nov. 28, 1884.

EDITOR OF THE HUB—KIND FRIEND: One good turn deserves another. Ergo, so long as you keep on doing them, business will not be dull with you. I have a customer who thinks he wants a Wagonet of the design shown in your April number, plate 5. Can you tell me who builds them? If so, you will oblige me, and add another to your good turns.

SUBSCRIBER.

ANSWER.—Wm. Johnston, of 71 Hamilton-st., New-Haven, body-maker to the trade, is prepared to supply all varieties of Wagonets, either in the wood and iron, or completed. Apply to him for particulars and terms.

DESIGN OF HEARSE WANTED.

CAPE BRETON, NOV. 17, 1884.

EDITOR OF THE HUB—DEAR SIR: We are about to build a hearse for this town, and, having never built one, we are not posted, and appeal to you to put us on the track.

We would like to build one of the latest style, for one horse, and to cost not over \$400. If a suitable one can be built for less money, say \$200 or \$250, all the better.

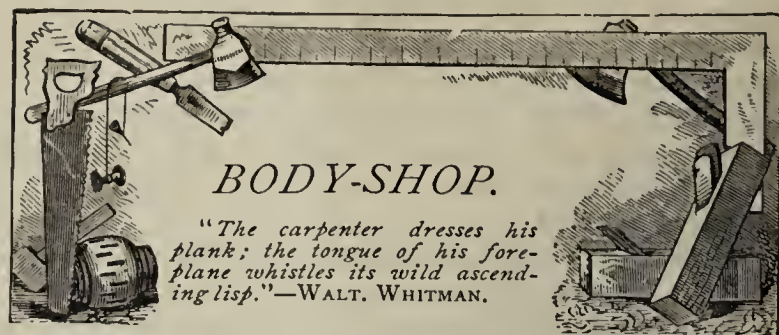
By giving assistance as above, you will greatly oblige, yours truly,

V. & M.

ANSWER.—Nearly every back volume of our magazine contains one or more hearse designs, and our correspondents would do well to examine and compare all such that they have access to. A new and plain design, just finished, is now in preparation for our February number, of which we will furnish a tracing at nominal price, if so desired. It should be built for \$400 or less, according to finish.

Our usual advice to carriage-builders having only semi-occasional orders for hearses, is to buy at trade prices from those making a specialty of such work. [We forward addresses.] The commission generally exceeds what the builder unacquainted with the work is liable to realize on a sample order, while the result is more likely to prove satisfactory to the customer. Customs duties may prevent this in the case of our Cape Breton correspondents, but these might be reduced by ordering the work in the wood and iron, and then finishing afterward.

A CENTRAL Park hack-driver is said to have returned a twenty-five cent fee when he was informed that the donor was treasurer of the Bartholdi pedestal fund.



WORKING DRAFT OF BODY OF LIGHT DROP-FRONT PHAETON, ON TWO SPRINGS.

(See Fashion Plate No. 76, mechanical description of same on page 687, and Working Draft of Body on opposite page.)

THE body considered in this working draft resembles in all material points Fashion Plate No. 76 in this number. In fact, the only difference between the two will be found in the moldings, the sides of the body in our working draft having but one molding, with a medallion, while that shown in our Fashion Plate has three moldings, the center one bearing the medallion.

A correct working draft is an essential help to the production of accurate work, and no carriage body should be built without one. The construction of a body after the accompanying draft is not difficult, as will be found by examining the drawings composing it, which, as usual, are four in number. Fig. 1 represents the side elevation; Fig. 2, the half front view; Fig. 3, the half back view; and Fig. 4, the half bottom view. The main consideration, in laying out such a draft, is to secure a good-looking job, which can be produced with the least possible work. Current prices paid for building such bodies are not extravagant in any case, and style should receive first attention. The body has considerable turn-under, and a fair side swell, yet the different pieces entering into its construction are as light as we deem practicable with view to the strength.

The dimensions of the principal pieces are as follows: The rockers B, C and D are made of $1\frac{7}{8}$ in. ash. The corner-pillar E is of $2\frac{1}{8}$ in. ash, and the bottomside F of $1\frac{3}{4}$ in. The fill-up piece G, from the outside of the rockers to the outside of the sides, is made of $2\frac{1}{4}$ in. whitewood. For the side H, 2 in. whitewood will be abundantly thick. The top rail for the back is made of $1\frac{1}{4}$ in., and the bottom cross-bar of $1\frac{1}{8}$ in. ash. The front or toe-board bar is $\frac{5}{8} \times \frac{3}{4}$ in. thick, and 2 in. wide. The bottom passes over the bottom face of this bar, and is glued to it. The other bar, at the extreme rear end of rocker B, is $\frac{7}{8}$ in. thick.

The principal dimensions of the body proper are as follows: Width in center on top, 41 in.; ditto rear, 38 in.; and ditto front, $30\frac{5}{8}$ in. Turn-under, $5\frac{3}{4}$ in. Rocker-plates, $1\frac{3}{4} \times \frac{5}{16}$ in., fastened with $1\frac{1}{4}$ in. Nos. 12 and 14 screws.

Each of the rockers is composed of three pieces, to avoid cross-grained timber. Rockers B, C and D are parallel with the ground line A, the rockers C and D are inclined by line I, Fig. 3, and rocker B is not inclined.

The framing of the rockers D and C is very simple. The tenon and mortise can be gauged off, as the positions of both pieces on the horizontal and lateral plane are alike. There is a slight difference in the positions of the rockers B and C, rocker B being vertical, while rocker C is inclined by line I, Fig. 3. The mortise which should be on rocker C is pricked off, the difference being found between the lines I and J, in Fig. 3, at the height of rocker B, where the rocker connects with rocker C. This will cause the rocker B to project out a trifle from the rocker C at the bottom face, but it is then dressed even with rocker C. The corner-pillar E is framed parallel with center line A, but inclines by line K, Fig. 4. To dress the pillar properly, saw off the ends both top and bottom parallel with line A, and inclined like line K, from where the mark of the pattern intersects with the ends top and bottom. Then square a mark over from the inside to the outside, and mark off by the pattern. This will bring the rear face of the pillar square with the ground line. That is, if a straight-edge is placed across, it will touch both the inside and outside. The bottomside F, which is dressed by line I, Fig. 3, is screwed and glued to the rocker D. The pillar E is framed to the bottomside F by a lap projecting $\frac{5}{8}$ in. to the outside. On the back view a difference of inclination will be observed between lines K, the inside of the corner-pillar E, and the line L, the outside of the rockers C and D, which is necessary to bring the pillar E into the position indicated in the back view, Fig. 4. The lap on the bottomside F is pricked off, and the amount of displacement of the lap is found in the difference between the lines K and L, from M to N, Fig. 4. The projecting part of the pillar, after it is framed, is worked off to within $\frac{1}{2}$ in. of the rear face of the corner-pillar E. The remaining $\frac{1}{2}$ in. is worked so as to form a miter. After the rockers are framed together, and the cross-bars made of the right length and properly fitted, the bottom is then put together.

The length of the top back-rail O, Fig. 4, is obtained between the center line P and the inside line of the corner-pillar K, Fig. 4. The top rail has a tenon and the pillar a slit. The corner-pillars and top rail are put together, and fastened temporarily to the body. The rear panel is then marked off and fitted, the rabbets for the bottom worked on, and the plates fastened to the rockers. The bottom may then be put together.

The next move is to fasten the back panel to the body, and after that the sides. Line Q, Fig. 2, represents the inside of the top face, and line T the inside of the bottom face of the sides. T is the outside line at the top, and U the outside line at the bottom face of the sides. The corner-pillar E is pricked off at the rear and front face alike. No bevel is worked on the outside of the pillar, the side swell being produced by the sides. The pricking off of the corner-pillar is an easy matter, and is accomplished by deducting the turn-under from the side sweep, no heat line being used on this draft.

When the sides have been fitted, the side swell is then worked on. The sweeps of the top and front faces of the sides are obtained by drawing several vertical lines to the cant, Fig. 2, as lines 1, 2 and 3. Also carry over points 4, 5 and 6 to Fig. 3. On 1, 2 and 3 take the distance from X to T, and transfer the same over to the top of the side. At the

will then be more inclined, and the body-loops are then bolted under the rockers.

The construction of a body after this draft is very simple, and ought to be understood by any one having any knowledge of carriage body-making; but if questions arise in the mind of any reader that find no answer in the foregoing description, we shall be pleased to receive and reply to them in detail.

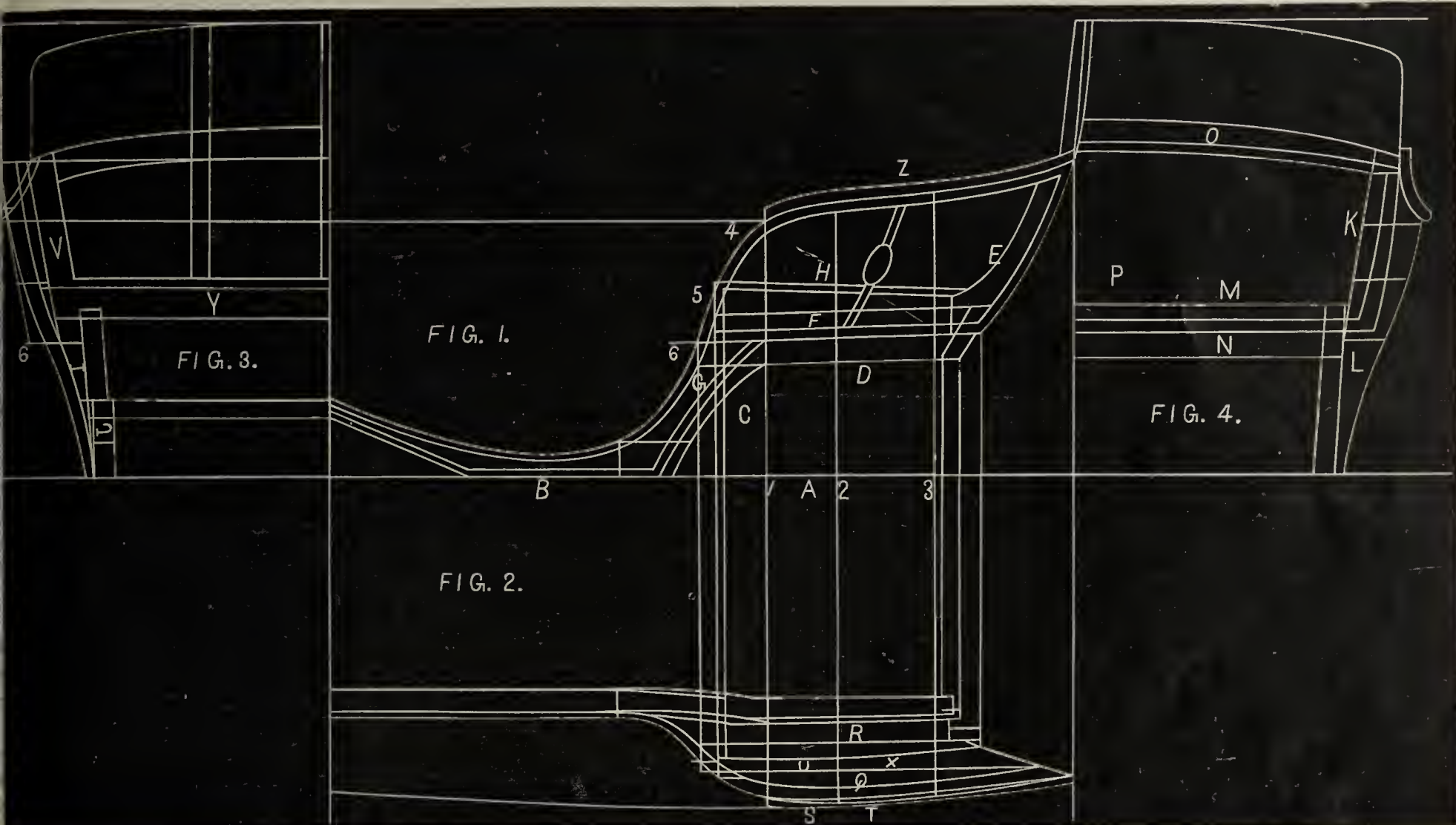
ADDRESSES OF EXCELSIOR MANUFACTURERS WANTED.

HOMER, N. Y., Nov. 18, 1884.

TO THE EDITOR: Can you inform us where we can buy excelsior direct from the manufacturer?
H. W. C.

ANSWER.—Yes; apply to either of the following manufacturers: Bartlett Bros., Warner, N. H.; A. M. & A. J. Fox, Ellsworth, Me.; J. W. Porter & Son, Strong, Me., or B. Wing & Co., Vassalboro, Me.

The above-mentioned firms make a merchantable article, and, we think, will be able to perfectly supply the wants of our correspondent. Send for particulars.



WORKING DRAFT OF BODY OF LIGHT DROP-FRONT PHAETON, ON TWO SPRINGS.—SCALE, ONE INCH TO THE FOOT.

(See Fashion Plate No. 76, Mechanical Description of same on page 687, and description of this Working Draft on page 690.)

rear, the thickness and shape of the sides are regulated by the pillar. After being pricked off, the different points are then connected by a line. On the front the process is similar. It will be found that point 4 is the same as 1. For 5 and 6, take the distance from V to the turn-under line. With a pattern made after line U, connect point 6 with the rear end by a line. After the side swell has been worked on the outside, the thickness of $\frac{7}{8}$ in. is gauged off and lightened out from the inside. After the sides have been glued, the piece G is then fitted to the rocker C. The joint formed by G and the bottom face of the side H, must be exceedingly well fitted and glued, or it will be liable to show. A short tenon on the piece G, let into the bottom of the side H, will add strength to the joint. The surest way to prevent the joints from showing would be to bridge them over on the outside. The piece G should extend to the front end, to prevent the necessity of another joint.

After the sides and back have been cleaned off, the wings Z are then fitted and screwed and glued to the top of the sides. The wings project $\frac{3}{8}$ in. over the sides on the outside. The putting in of the bottom will be next in order, and last the extra back, which is 1 in. thick, and made of whitewood. The board forming the extra back must be accurately fitted, and should set in $\frac{1}{8}$ in. from the outside, thus preventing the joint from showing. Dowels are put in the board at intervals, projecting out about $\frac{7}{8}$ in. Holes are bored in the top rail O, for the dowels. Three wooden strainers are fitted to the back, for further strength. The seat-rail, which is represented by Y, in Fig. 3, is screwed to the top of the rockers, and is fully illustrated on the front view, Fig. 3. In case no bottomside is desired, the sides may be glued directly to the rockers. The rockers

QUESTIONS ABOUT TOPS MADE OF BUILT-UP WOOD.

EDITOR OF THE HUB—DEAR SIR: I should like to ask the following questions through your columns about tops made of built-up wood.

1st. How far apart should the bows or curves be placed? It does not seem to me necessary to have them as near together as in other tops.

2d. What is considered the best way to put them on, namely: with nails to both top-rails and bows, while the glue is fresh? Or to press them on with cauls and thumb-screws? Or in some other way?

3d. Do they need to be canvased on the top or bottomsides of the boards, or both?

GEO. H. SMITH, New-Haven, Conn.

ANSWERS.

ANSWER 1ST.—On a carriage body where the top is covered with built-up wood, it is not necessary to have the curves so close together as on a body where the top is covered by several boards, or even by two boards. A top made of built-up wood is stronger, and being bent almost in the proper shape both crosswise and lengthwise, it will not produce any strain when fastened to the body. Mr. French, the manufacturer of these built-up tops, is confident that he can bring these tops to such perfection that one wide curve in the center will be all that is necessary.

ANSWER 2D.—Decidedly the best way to glue these tops to the body is by thumb-screws and cauls. Nails may be put in sparingly after the top is cleaned off.

ANSWER 3D.—On a top made of built-up wood it is not considered necessary to canvas the under side. This, however, is a point which may safely be left to the judgment of the carriage-builder.



WORKING DRAFT OF OCTAGON-FRONT COUPÉ.

See Fashion Plate No. 80, mechanical description of same on page 689, and Working Drafts on opposite page.)

By the aid of the accompanying working drawings we will endeavor to explain in detail the most approved modern method of constructing a body as this one, for which there is an increasing demand by theriage-using public, and consequently an increased demand for information regarding their construction. They are now built of widely differing sizes. In cases where the front seat has only about 6 in. extension in front of the coupé-pillar, the body is intended merely for children, but an extension of the size illustrated in our drawing will allow seating two grown persons quite comfortably. The recent revival of the "Barker line" on Coupé quarters promised a revolution in style, but this was of short duration, as it met with no favor on the part of the public. It has not been totally abandoned, as is proved by the occasional appearance of new vehicles distinguished by the round quarter. In such instances, the curve at the bottom corner is generally very short, thus largely overcoming the principal objection against the "Barker line," that of lessening the seat-room; and the bottom in the center of these vehicles has considerably more curve than was shown in designs published previously.

The front glasses on extension-front coupés, as now built in our lead-shops, are made either to drop or slide, the latter being more frequent, and in this case two frames are used. The only advantage in using two lights seems to be the gain of about $1\frac{1}{2}$ in. greater depth for the front seat, which is certainly a noteworthy item; but the advantage of having only one glass in front is also worthy of due consideration. So far as ventilation is concerned this can readily be obtained by dropping the single glass its full depth, while, with two glasses, only the full width of the front can be utilized in this way.

It will be observed that our draft is divided into eight sections, as follows: Fig. 1, the side elevation; Fig. 2, the cant; Fig. 3, the standing-pillar; Fig. 4, the half front view; Fig. 5, the half rear view; Fig. 6, a section of the front or boot rockers; Fig. 7, a section of the rear rocker; and Fig. 8, a special cut of the door rocker F. Figs. 6 and 7 are drawn to $1\frac{1}{2}$ in. to the foot.

Dimensions.—Width of body at hinge-pillar, 51 in.; ditto coupé-pillar, 42 in.; ditto rear, 42 in.; ditto front, $32\frac{1}{2}$ in.; and ditto dash, 30 in. Turn-under, $2\frac{3}{4}$ in. Size of rocker-plates, $3 \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. No. 18 screws.

The sizes of timbers used for the rockers are as follows: B and C, 2 in.; D, $1\frac{7}{8}$ in.; E, $3\frac{1}{2}$ in.; F, $1\frac{5}{8}$ in.; G, $1\frac{5}{8}$ in.; and H, $1\frac{3}{8}$ in. For the bottomside I, use $3\frac{1}{2}$ in.; upper section of corner-pillar J, 3 in.; rear standing-pillar K, $2\frac{1}{2}$ in.; coupé-pillar L, $3\frac{1}{2}$ in.; front corner-pillar M, $1\frac{7}{8}$ in.; front door-pillar N, $1\frac{3}{4}$ in.; rear door-pillar O, $1\frac{5}{8}$ in.; front boot-pillar P, $\frac{7}{8}$ in.; rear boot-pillar Q, $1\frac{1}{2}$ in.; arm-rail R, $2\frac{1}{4}$ in.; center door piece S, $1\frac{3}{4}$ in.; and top door piece T, $1\frac{3}{8}$ in. For the lower rail U, $2\frac{1}{4}$ in. is required. The lower piece V, at the extension, is $1\frac{1}{2}$ in.; and the upper piece W, is of the same thickness. The rear cross-bar is $1\frac{3}{8}$ in., and the others 1 in. The middle rail at the rear is $1\frac{1}{2}$ in., the back having 1 in. swell at that point, which decreases to a straight line toward the bottom cross-bar. The front curve is $1\frac{7}{8}$ in. thick, and the rear curve is of the same thickness. All intervening pieces are $1\frac{1}{8} \times \frac{5}{8}$ in. The piece X, which connects the two boot pillars P and Q, is $1\frac{1}{4}$ in., and the seat-frame pieces $\frac{7}{8}$ in. thick. The pieces of the seat frame are $3\frac{1}{2}$ in. wide, and the front and rear pieces 5 in. wide. All the pieces above mentioned are of ash.

The rockers E, F, G and H, are inclined after line A', Fig. 3, and connected after lines Y and Z. Rocker D is contracted after line E', Fig. 6, and inclined by line D', Fig. 1. Rockers B and C are contracted after line F', Fig. 2, and also inclined by line D', Fig. 1; and rocker H, is connected by line Z, Fig. 2.

The usual method of dressing the different pieces which are inclined and contracted has already been sufficiently explained in former numbers.

The construction of the front can be accomplished in two ways. One way would be to use four rockers, namely: B, C, D and E. The joints between the rockers D and E will then be at *a*, *b* and *r r*, and the rockers will extend within $\frac{5}{8}$ in. of the rear face of the coupé-pillar. Secondly, the rocker D may extend to the rocker F, and be framed to that rocker, the inside of the rocker D then following the dotted line G'. In adopting the second method, rocker E can be dispensed with, but we then require piece H', which is let into rocker D, and fastened against the coupé-pillar by a strong screw and by glue. The first-mentioned method is preferable, we think, although it requires wider pieces at the joints *a* and *b*. The use of four pieces for the rockers instead of three, requires one more joint, but this consideration is counterbalanced by the advantage of dispensing with the dressing and framing of piece H', attached to the rocker and coupé-pillar. Another advantage of the first method is that

the rockers D and E are fastened through their entire height to the coupé-pillar, thus insuring a stronger job.

The toe-board rocker B is connected with the rocker C at the joint *c*. The scroll is worked on the toe-board rocker C. By making the joint at the place designated on the drawing, it will be seen that the joint on the outside is entirely covered by the molding which forms the finish.

The boot-pillars P and Q are lapped to the rockers C and D, and fastened by three $1\frac{1}{4}$ in. No. 12 screws. The coupé-pillar L is fastened to rockers D, E and F by screws and glue. The screws are introduced from the inside, as usual. The rockers F and G are framed by line Y, Fig. 2, which will enable us to make the bottomside I $\frac{5}{8}$ in. lighter than we should by framing rocker G to F by line Z, Fig. 2. Fig. 7, the top face of rockers G and H, will explain more fully the way of framing these rockers. It is drawn to $1\frac{1}{2}$ in. scale. Line *g* is the outside of rocker H; *h* the inside; *i* the outside of rocker G; *j* the splice; *k* the inside of rocker G; *l* and *m* represent the bottom of the rocker G. The connections of rockers D and E, as illustrated by Fig. 6, are also drawn to $1\frac{1}{2}$ in. scale. It will be noticed that rocker E alone has a shoulder. The joint line E', Figs. 2 and 7, is pricked off, and represents the joint *a*, Fig. 1.

It will be observed that the boot has an inclination of about $\frac{1}{2}$ in., commencing from the ground line of the boot F', Fig. 1.

The establishment of the right line for the splicing of the rockers E to D, is an easy matter. Take the distance from lines *o* and *p*, on Fig. 7, and transfer the same to the top of the rocker E at *a*, Fig. 1. Then take the distance from line *n*, to dotted line Q. This will give the distance for the shoulder at the bottom of rocker E at line *a*, Fig. 1. The joints at the rear end of the rocker is obtained by measuring from the same points as followed at the joint *a*. By comparing the spaces between lines *o* and *p*, *n* and Q it will be found that allowance is made between the different inclinations of A', Fig. 3, and D', Fig. 1. The rockers C and D are put together by tenon and mortise, which can be gauged off, both having the same inclination and contraction. The joints are at *r r*. The same process will answer for the rockers B and C.

The boot-pillars are lapped to the rockers, and framed to run parallel with the ground line A. The rear boot-pillar, Q, is worked on the outside to follow the outline of the rocker D, which will make the pillar Q $1\frac{1}{2}$ in. at the bottom, and $1\frac{1}{16}$ in. on top.

The door is to be of equal width both top and bottom.

The dressing of the coupé-pillar can be greatly facilitated if the rear face of the pattern for the coupé-pillar is made of the proper shape, and a good way to arrive at this result is as follows: Divide the distance between the top of the garnishing rail and the bottom of the body in several spaces, which is done on this draft by lines 1, 2 and 3. These lines are drawn across to the standing-pillar. We will first ascertain the position of the lowest point, which is at the bottom of the body. Take the turn-under at the bottom of the body, between the lines K and C', and place it on G' toward H', on Fig. 8. From there space off $\frac{5}{16}$ in., the thickness of the rabbet. Then strike the shut bevel from this point to line H', and draw a line to ground line A, Fig. 1. This is the first point for the inside line of the pattern. The position for the point on the garnishing rail is obtained by taking the distance between the lines A' and B', Fig. 1, on the top face of the garnishing rail, and placing it on line H', towards G', point *u*, Fig. 8. Strike the shut bevel line from G to point *u*. From the intersection of *u* and the shut bevel line, square up to the garnishing rail. This will be another point for the pattern. We will now describe another point, line 2. Take the turn-under at the height of line 2, at the standing-pillar, and transfer it over to line G', toward H', Fig. 8. Then take the distance between lines A' and B', at the same height, and transfer this over to H', toward line G', Fig. 8. Strike the shut bevel line from the point obtained through the turn-under to the point obtained through the inclination, or the distance between lines A' and B', which is line *t*. From the point *t* on Fig. 8, obtained through the distances between lines A' and B', Fig. 3, a line is squared up to line 2, Fig. 1. Unite these three points by a line, and this will be the rear face of the coupé-pillar from the bottom to the garnishing-rail. As the pillar on this job is of one width from the garnishing rail to the top rail, the inside of the door will run parallel with the outside.

When the rear face of the pattern is established, it is an easy matter to find the front sweep, by either drawing a number of lines across the pillar on the draft, and transferring the same to the pattern, then pricking off the width of the pillar at the different places, and uniting the same by a line; or, if there is a pattern having the front sweep of the coupé-pillar the full length, the width of the pillar on top and bottom may be directly transferred to the pattern, and these points then united by a line.

In dressing this pillar, body-makers differ materially, although the final result will be nearly the same. An easy and quick way of dressing the coupé-pillar is to lay the pattern of the standing-pillar, Fig. 3, on the rear face of the coupé-pillar, and mark off the inside. Then shave off to the mark, but only at the edge. Afterward take the coupé-pillar pattern

for the side elevation, and lay it on the inside, and mark off the rear face represented by line *s*, Fig. 1. Then face the rear side by this mark. When done, lay on the standing-pillar pattern once more, and mark off. Then set the bevel by the shut bevel line and line *Y*, Fig. 2, and dress the inside of the pillar by these lines. Lay the side elevation pattern of the coupé-pillar on the inside, placing the rear edge of the pattern on a line with the rear face of the pillar, and mark off the front face. Then set the bevel by line *Y* and either of the perpendicular lines, and dress off the front face.

The outside of the coupé-pillar is dressed by the shut bevel line and *S'* to the garnishing rail, and from there the front face ought to be pricked off. We can utilize the lines 1, 2 and 3, used for ascertaining the shape of the rear face of the pattern, by crossing the same over to the front face of the coupé-pillar. Square the points where these lines intersect with the front face to the cant. Then take the amount of turn-under on each of these lines, and transfer the same to Fig. 2, line *S'*, toward line *Y*. Then take the space between lines *A'* and *B'*, and place the same on line *Y*, Fig. 2, toward line *S'*. The remaining space between the points obtained from the turn-under and the line of inclination is the thickness of the coupé-pillar at the lines 1, 2 and 3, and at the bottom end. Take a thin pattern and connect these points by a line, and the coupe-pillar will then have the proper sweep on the outside. The execution of this rule will require less time than our explanation.

The rear face of the front door-pillar should be dressed square with line *Y*, Fig. 2, which will permit of having the lock-pillar lighter than if the rear face were dressed to run parallel with line *I'*, Fig. 2. That part of the lock and hinge-pillars below the garnishing rail, if the pillars are dressed square by line *Y*, will have to be pricked off, using the rear face of the lock-pillar and the front face of the hinge-pillar as a guide line by which to prick off.

The top rail *W*, of the front extension, is secured to the inside of the coupé-pillar by screws; and the bottom piece *V* is fastened in the same manner. The bottom pieces represented by *V*, and the front bottom cross-rail, are lapped to the corner-pillar *M*, and fastened by screws. The screws are plugged. In some factories a piece of thin panel is glued over the sides, thus covering all joints; and in that case the screws need not be plugged.

The panel covering the side is made of one piece, and the opening to the glass is cut out. If the extra labor of gluing a panel over the sides is objected to, we would then advise having the piece *V* and the cross-rail form a miter joint with the corner-pillar *M*. The same method of framing will answer for the top piece *W* and the top cross-rail; or, with a little extra work, the side piece *W* and the top cross-rail can be framed to the pillar *M* by a lap and a tenon, which will produce the strongest and best job.

The front glass-frame is made to be lowered, and the dotted line in Fig. 1 indicates the piece necessary for the glass to slide in.

The back of the front seat is made in two pieces, which are hinged together. The top section moves inwardly when the glass-frame is lowered or raised. The side glasses, as represented on this draft, are placed in position from the inside of the body. The insertion of the side-glasses of such an extension front from the outside is preferable in many respects, but is not generally adopted. By the latter method, the change can not only be effected more quickly, but it also permits of making the sides of the glass-frame about 1 in. wider than if the glasses were inserted from the inside, thus permitting better proportions in the dimensions of the glass-frame.

The front pillar *M*, instead of showing a width of $1\frac{1}{2}$ in. on the outside, can be worked so as to show only a $\frac{7}{16}$ in. molding. A groove, $\frac{1}{8}$ in. thick and $\frac{1}{4}$ in. deep, is cut into the molding, and a plate is then let in from the inside of the glass-frame, of the same thickness as the groove projecting over the outside of the frame piece the depth of the groove, or about $\frac{1}{4}$ in. The rabbets in the pieces *V* and *W* are lengthened at the coupé-pillar about $\frac{3}{8}$ in., to allow the projecting plate at the front of the frame to pass the molding at the corner-pillar *M*. When this is done, the frame is pushed forward, and kept in place by two spiral springs fastened against the inside of the coupé-pillar.

The construction of such a body, although it may appear somewhat difficult at first sight, will not prove a serious undertaking, providing the body-maker is supplied with a good working draft and a few verbal instructions from the foreman.

ALBERT KEHRL.

NO EAR FOR MUSIC.

THERE was a young man out in Arizona who once declined a pressing invitation to favor a select company with a song. "Oh, really, you must excuse me," said he, "I tell you I can't sing. I don't come of a singing family. Why, there was my old father, he used to try old Old Hundred, but he had so little ear for music that he never got more than Ninety out of the tune."—*N. Y. Tribune*.

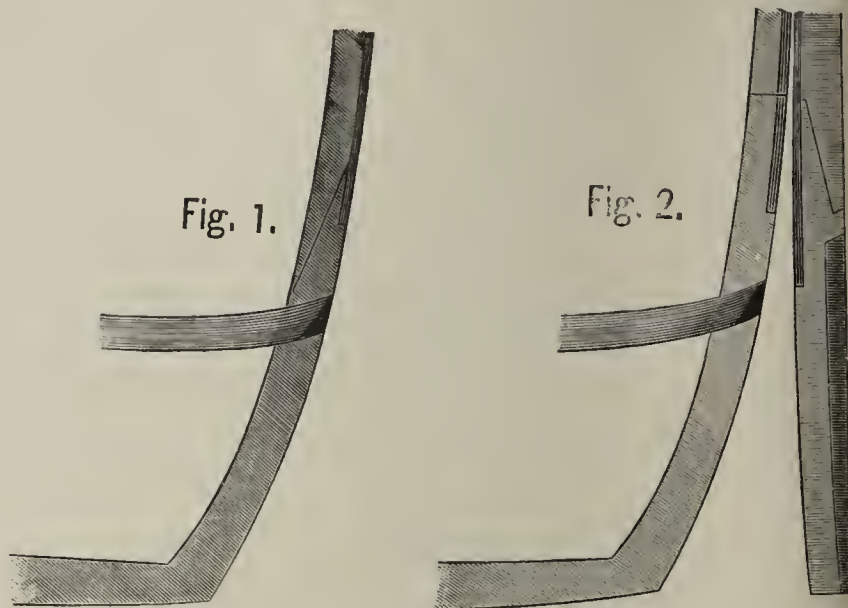
SPLICING BENT CORNER-PILLARS.

EDITOR OF THE HUB—DEAR SIR: Which is the best way to splice bent corner-pillars, namely: with the joint parallel, or at right angles with the center line of the body?

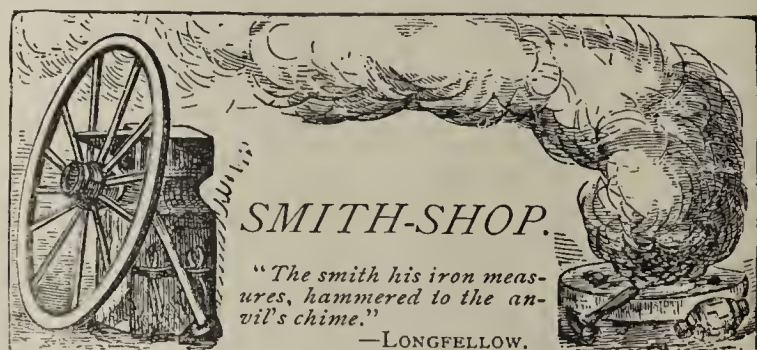
GEO. H. SMITH, New-Haven, Conn.

ANSWER.—We have always considered best the method of splicing bent corner-pillars illustrated by the accompanying Fig. 1.

The splice on the back face of the bent pillar must not have a shoulder, but it should form a feather-edge, and should be placed so as to be covered by the back panel.



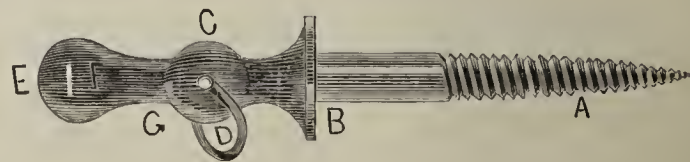
After some consideration, we do not see why the splicing of the bent pillar should not answer fully as well by having the joint parallel with the ground-line. The upper joint is on the outside, as illustrated in Fig. 2, and will be covered by the upper quarter-panel. The danger of the panel splitting, in case the joint should open by reason of the pillars not being perfectly seasoned, is obviated by the grain of the quarter-panel crossing the joint; and, at the back, the short joint is covered by the back panel. Two screws, fastened at each end of the splice near the joints, will prevent any giving away, if it were possible otherwise.



DRAW-EYES FOR TRACES OR TRACE-CHAINS.

MR. GEORGE B—N writes: "Please don't give my name or place of residence, because I am a little ashamed to ask for the information. I have never been a strong advocate of yours, or of any other carriage trade journal, for the reason that I had been led to believe that they were treated on the manufacture of fine vehicles only; but I subscribed for your present volume with some reluctance, thinking it was three good dollars wasted, and I have been agreeably disappointed, and presume others sail in the same kind of a canoe. I see that many "Hows," "Whys" and "Wherefores" on the rougher grades of work have been satisfactorily explained through your pages, and I now knock at the door of your supply box of knowledge for the following information. I have a number of heavy team wagons to make, which are to be drawn by relay teams whose traces are not all alike. Please give me a design of a draw-eye where the plain leather trace, cock-eye trace and trace-chain can be used."

ANSWER.—The best method we know of, to recommend to our newly acquired friend, is shown in the accompanying sketch, wherein A shows



the screw pin of the draw-eye; B, the collar, resting against the end of the singletree; C, a swell, with a hole into which weld a ring of $\frac{3}{8}$ in. round iron, 3 in. diameter; E, the outer end; G, the neck for the leather or cock-eye trace; and F, a key-slot for insertion of a leather thong or key, to prevent the slipping off the trace. The ring is to be used for trace-chains.

NEW-STYLE GEARING FOR BROUGHAMS.

(See five Illustrations accompanying.)

THE gearing illustrated in the accompanying drawings was originally designed for a Brougham, but may also readily be adapted to other vehicles. The sketches were kindly furnished by Mr. Lee J. Aubry, blacksmith with Messrs. Henry Hale & Co., in New-Haven, Conn. In connection with the side elevation of the gearing, we have also drafted the front of the body, and we would add that this is made entirely of iron, with the exception of the foot-board and seat-frame.

Fig. 1 represents the side elevation; Fig. 2, the half front view; Fig. 3, the half top view of the bottom gear; and Fig. 4, the top view of the

having a countersunk head, passes through the toe-board, crane-iron, and the front top-bed.

No futchels are used on this gear, but merely a stay of one piece, running from the splinter-bar to the front bottom bed. The front and rear beds rest on top of the spring-stay, and are held in position by a clip, the clip forming an angle at the spring-stay, and a clamp at the top of the spring, the bolt of the springs being utilized also for fastening the clip. Another bolt passes to the clip-bed and spring-stay.

Fig. 2, the half front view, shows the shape and dimensions of the front top and bottom beds, half distance of springs apart, half length of splinter-bar, etc.

Fig. 3, the half top view of the bottom gear, illustrates fully the con-

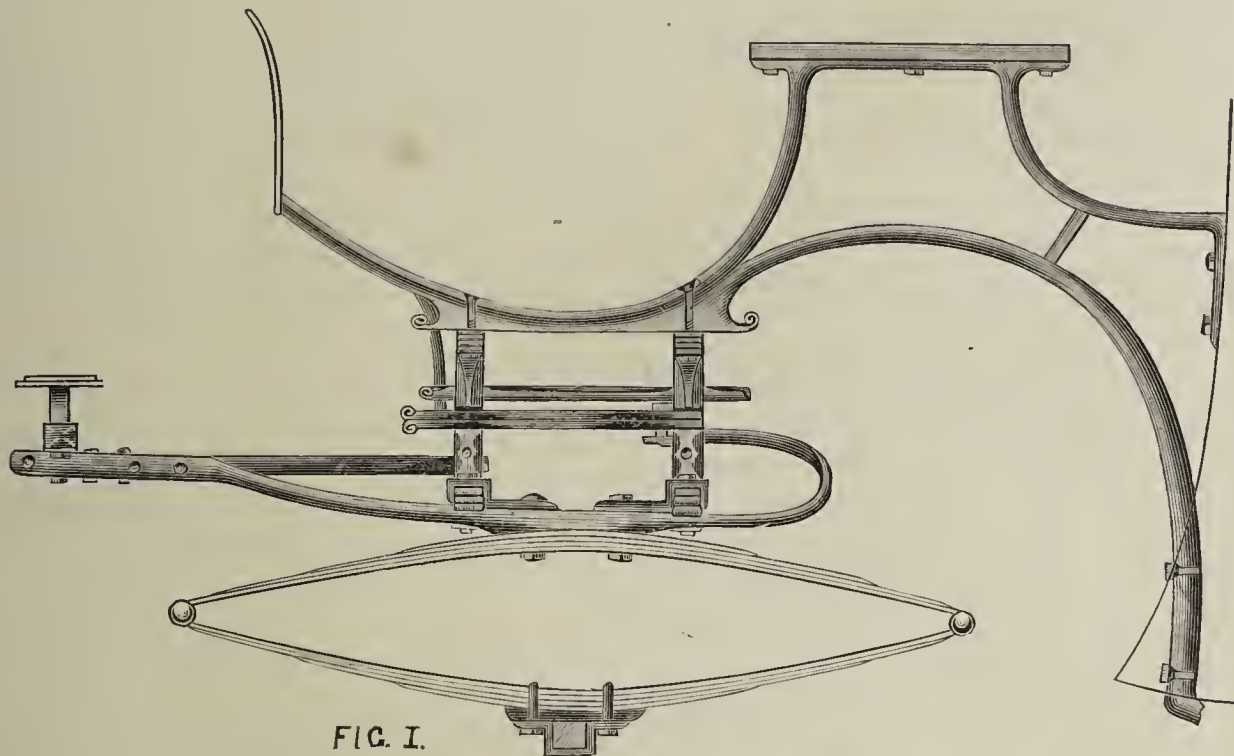


FIG. 1.

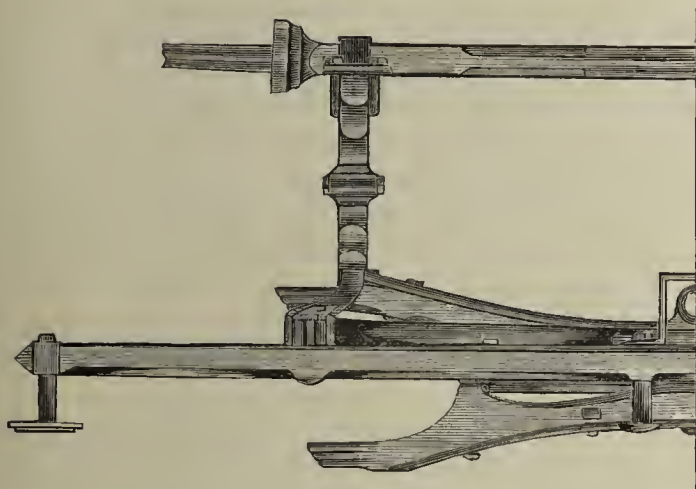


FIG. 2.

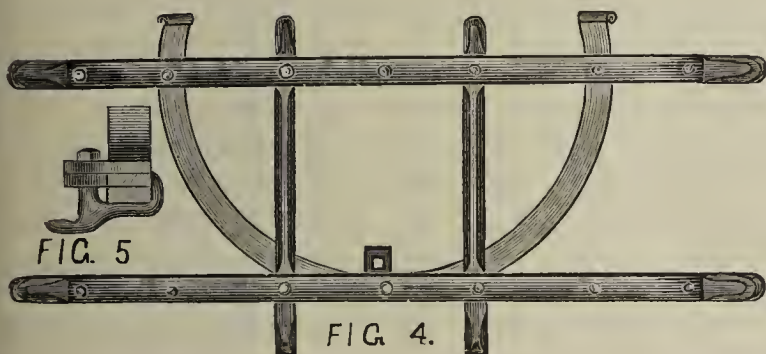


FIG. 5

FIG. 4.

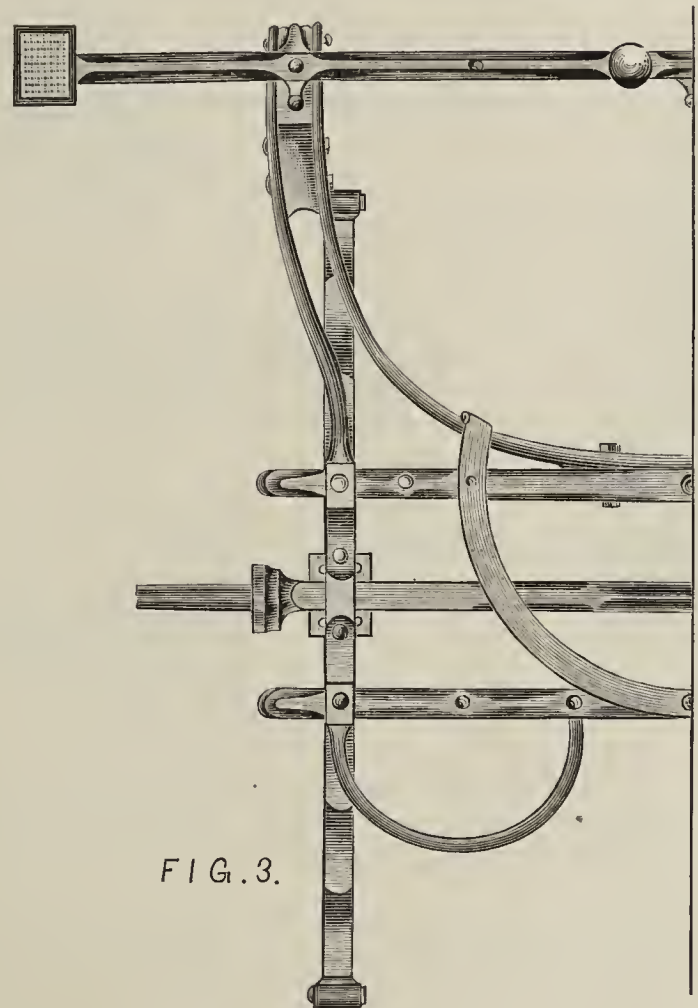


FIG. 3.

NEW STYLE GEARING FOR BROUGHAMS.—(See description accompanying).

gear. Fig. 5 is a supplementary cut, giving a clearer idea of the spring hook.

The crane-iron forming the bottom sweep of the body is made of one piece, and is bolted to the coupé-pillar. A space on the top face of this crane-iron is shouldered down for the fitting of the iron upright forming the front pillar. This pillar is shouldered off on the top face the thickness of the bottom board, bottom board and front pillar, thus forming the sweep. The iron representing the shape of the neck pillar is bolted to the coupé-pillar. The short bar between the neck and the bottom iron is welded to the top irons, and has a lap at the bottom end. A lap is welded to the crane-iron, and both are connected by a bolt. The front pillar, crane-iron and toe-board are connected by a bolt with a countersunk head, and the bolt projects through the crane-iron far enough to reach through the top rear bed. Another bolt in front, also

construction and form of the different parts. It will be seen that the construction is very simple, though the design differs materially from others previously published. For instance, there is no wooden bed above the center of the axle, but the front bed is placed about 5 in. forward. The distance between the bars, measured from out to out, is about 11½ in. The gear is placed under the body in such a position that the distances from the scrolls to the beds are nearly alike. The curved iron bar continuing from one side of the splinter-bar to the other, and which is bolted in the center to the wooden bed, forms a substitute for the futchels. At the rear the spring-stays are the only iron parts used. The fifth-wheels, which are only sectional fifth-wheels (as will be noticed on the drawing), are bolted to the rear top and bottom beds. The wooden beds are all plated both top and bottom.

Fig 4 shows the top view of the top gearing, which consists of two

wooden beds, two wheel-bars and the half fifth-wheel. The wheel-bars are framed into the beds, and finished off with a bead between the beds, or rounded over. An ear is welded to the front of the bottom plate on the rear bed, and another ear of similar size is welded to the top fifth-wheel.

The safety hook, illustrated in detail on Fig. 5, has a bolt, and this bolt passes through the two ears welded to the fifth-wheel and the bottom plate of the rear bed, and is provided with a thread for the reception of a nut.

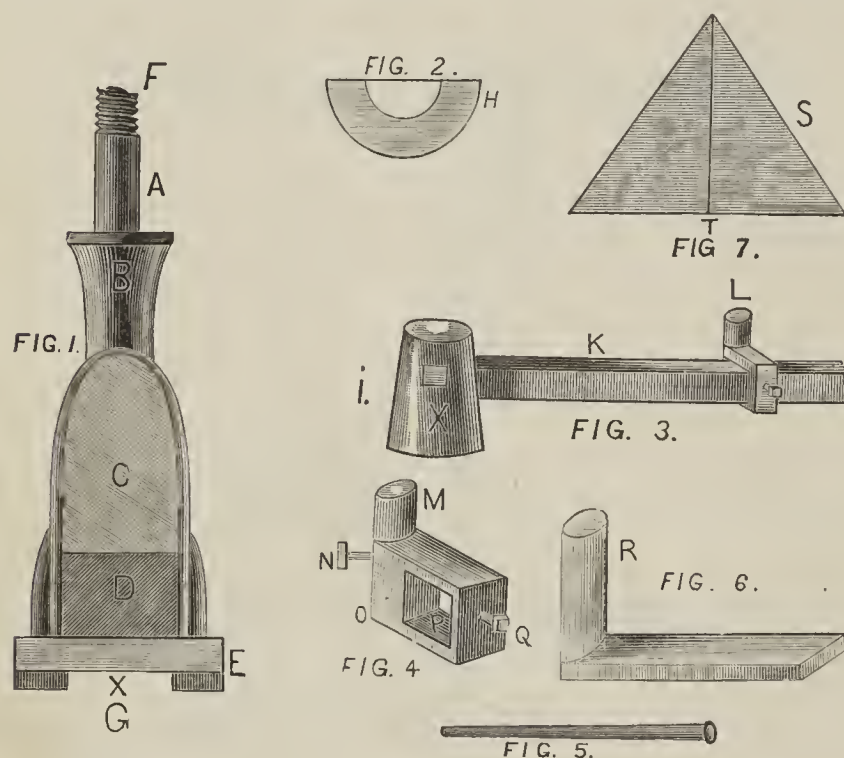
Our correspondent claims, and with apparent justice, that this gear is easy to make, that the iron work especially is very simple, yet strong, and that the whole can be produced without great expense. The wood-work is made up of straight pieces, which will not enhance the cost, although four beds are required, for the dressing of straight pieces requires much less time than that of bent pieces. Our opinion is that the claims of Mr. Aubry are well founded, and we recommend such of our readers as are interested in this class of work to give the above careful study. It represents the results, not of theory, but of practice.

HOW TO SET FIFTH-WHEELS FOR BUGGY GEARINGS.

WE have been asked by a finisher, writing from San Francisco, Cal., to explain how to set a fifth-wheel for a buggy gearing. This we do most cheerfully.

If the reach and bolster are properly made, they will allow the upper section of the fifth-wheel to rest level on the bearing at the bolster, and at the bearing of the reach-plate. This part requires no further explanation, presuming that the same are properly made, and that the reach-plate, where the circle turns, is of the proper thickness to fill up the space made for it.

The part requiring special painstaking is the curved half or section of the circle, and the kingbolt in its connection with the axle. The clip of the kingbolt and the clip-yoke constitute the two chief levers at that point, and the clips of the fifth-wheel with their yokes are the regulating levers at that portion of the structure. The formation of these essential parts we illustrate and describe below.



In Fig. 1, A represents the upper section of the kingbolt, passing through the spring and secured by a nut on the top. B is the collar or shoulder portion; C, the axle-bed; D the iron portion of the axle, and E the clip-yoke.

We must first secure the king-bolt, and in such a manner that, when the surface of the iron part of the axle is strictly level or horizontal, a line drawn from F to G shall be strictly vertical, or at absolute right angles with the surface of the upper iron section of the center of the axle. Should the king-bolt pitch either way, we must now, by loosening one nut and setting upon the other, set the king-bolt aright.

Fig. 2 represents the center section of the fifth-wheel, immediately back of the kingbolt.

Figs. 3, 4, 5, 6 and 7 represent parts and combinations of devices for proving the correctness of the kingbolt.

Fig. 3 shows a device with the head I, and set-screw X; and K is the arm on which is set the slide L, which is described in Fig. 4. M is a rounded projection with a set-screw; and N is the pin.

Fig. 5 shows the part which passes into M, and which is held fast in any desired position by means of the set-screw N. The part marked O shows the frame of the slide; and P the space into which passes the arm K; while Q is the set-screw which secures the slides at any desired position on the arm K.

After the kingbolt is placed in the proper position, the part composed of 3, 4 and 5, combined as described, is applied to the kingbolt, and so

adjusted as to permit of turning with comparative ease. The pin, Fig. 5, is adjusted and secured so as to be on a line with the base of the head I, which is horizontal with the shoulder of the kingbolt.

You can now adjust your fifth-wheel, and, when it has been adjusted properly, a straight-edge of thin sheet steel may be applied to the kingbolt collar, and no portion of the fifth-wheel should show discrepancy. The point of the pin, Fig. 5, will show any irregularities in the circle.

Figs. 3, 4 and 5, combined, may be applied to Fig. 6. The part marked R is a round standard inserted into the head I, and held in position by a set-screw. The flat portion should rest on a level plate, and be so placed that the pin, Fig. 5, is brought in contact with the kingbolt, which will show whether your king-bolt is strictly vertical. The triangle, Fig. 7, with its plane S, and the base T resting on the fifth-wheel, will likewise show whether the kingbolt leans to the other side. If it lean toward either spindle of the axle, you will thereby learn which way the stem of the kingbolt must be set in order to get it in a vertical position.

The average finisher may jump at the conclusion that the above mode of construction is intricate and costly, requiring much manipulation and loss of time; but such is not the fact, for any clever finisher could prepare the whole in less time than it has taken us to describe it, and we are satisfied that, after he has once supplied himself with the tools named and used them, he will never afterward feel justified in being without them.

N. Y. S.

CONSTRUCTION AND LOCATION OF RUB-IRONS.

EVEN an apprentice, employed in a shop where repairing forms a large part of the work, may learn much that would be of value to an old workman whose experience has been confined to new work.

It is not lack of opportunity, however, that checks the improvement of our methods so much as the prevalent idea among carriage workmen both in city factories and country shops, that the head is but a machine for memorizing established methods. Such men are hardly penetrable by reason; but were they to inquire to whom is due the wonderful advancement of carriage-building in the last century, and who have reaped the profits, they could not honestly answer "We," for their life's work has been but a testing of the teachings of their first instructors. It is only those who see in that wonderful machine, the brain, their proudest possession, and who justly value it and use it to its fullest capacity who have enabled us to put in so many coach houses vehicles that would have been marvels in the earlier days. Were our working forces composed of such thinking men, then our smiths and wood-workers would no longer noisily dispute whether a body is thrown forward or backward by a sudden stop, or discuss how this could be counteracted; the compounding of our paints would no longer be done in the random way it now is; and the development of the mechanical art of carriage making would no longer be procured merely through the slow suggestions of experience.

One of the most common and discreditable of the mistakes of carriage-makers consists in the mode of forming and placing rub-irons, which often permit the disfigurement of panels, or the gouging out of the rim when sprung over the sharp corner of the iron. Let us briefly consider this subject of rub-irons, and see what our heads are worth. Perhaps, at the expense of a little thought, we may hereafter be able to avoid the evil consequences of a misplaced rub-iron.

If a wheel would always rub in the spot where it first struck, the problem before us would be simple enough. But it doesn't! There are many conditions which cause the points of contact to vary. The first and principal of these is the depression of the body which results from loading. The rub-iron is nearly always placed above the level of the spindle, and any depression will of course make the wheel strike further back. From this we should learn that the wheel, in the unloaded vehicle, should always strike the iron near the front, and we shall find that the minor influences, hereafter noted, make this rule still more imperative.

The minor conditions of variation are, first, the springing of the wheel under heavy pressure, which always tends to move the wheel back on the iron; and, second, the increased dish caused by resetting the tires, which also has the same effect.

But we even find panels cut, without the wheel having left the rub-iron. In the case of square or piano-boxes this may result from the body being unequally loaded, with one side inclined outwardly, so as to let the wheel strike it. On very light low-hung bodies, where the rub-iron is on a level with the front hubs, we also find that, when heavily loaded, the wheel may, by projecting over, reach the panel. On phaetons and similar work the same result is also liable, and is generally due to lack of foresight on the part of the smith in not providing for the bulging of the panel.

Of course, in the cases last cited we require not only to know the cause, but to study out the remedy; and, to the blacksmith who gives a little thought to the subject, the avoidance of such evils will prove a simple matter, and he will find ample reward for his pains.

COLUMBUS, O.

SAMUEL HYNEMAN.



KEEPING VARNISH BRUSHES.

OUR exchange, *The Painter*, of Cleveland, O., gives in its November number a very correct and comprehensive article on "How to Keep Varnish Brushes Clean." The same facts have already been emphasized *The Hub* many times, or we should feel inclined to reproduce this well-digested review of the subject. L.

ERRORS STILL AFLOAT.

WE are sorry to see that our exchange *The Painter*, of Cleveland, O., has allowed itself to be taken in by the *Blacksmith and Wheelwright's* objectionable article on "Street-car Ornamentation," the substance of which it presents in the form of a hash in its November number. The reliability of the statements contained in the article referred to has already been pointed out in detail in the November number of *The Hub*, page 558, under the title of "Ornamentation as Applied to Street-cars." L.

VARNISH TADPOLES.

EDITOR OF THE HUB—DEAR SIR: Once more I appeal to you to help me out of a little trouble. *The Hub* has been a source of useful information in our paper, and your willingness to answer questions asked, and to help us out of our troubles, prompts me to again appeal to you.

Last week I varnished a square-box buggy body, in quite the usual way. The varnish looked well after it had been laid, and next morning, on the riser, it still looked well; but on the main flat panels it was covered with swells resembling shape tadpoles,—that is, there seemed to be little mounds of varnish, from the top of which there extended downward a little streak or tail, like the tail of a tadpole or comet. These were all over the flat side panels.

What was the cause of this trouble? I have had it before, I remember, but not for some time ago.

Please add, also, what I must do, under the circumstances, to cure the case I now have on my hands.

Your prompt reply will oblige an old subscriber.

A. T.

PARLETT, N. Y., 3 Dec., 1884.

ANSWER.—Varnish "tadpoles" are not a new discovery. They have long been the cause of occasional perplexity to the varnisher, who, having carefully prepared his body, and finished it admirably to all appearances, and under the most favorable circumstances, is surprised next morning to find that the smoothly-rubbed surface he finished over the day before, now bears as if in a state of eruption.

There is no doubt, in this case, about the cause. The trouble was due to the rubbing varnish, which was not thoroughly dry at the time the finishing varnish was applied over it. The little tadpoles which appeared were the specks in the rubbing coat, which were apparently cut down quite close to the surface under the rubbing rag, but, by reason of their not being thoroughly dry, they sweated and swelled out when the finishing coat was laid over them, forming little hillocks or mounds, from which the finishing varnish sagged or trailed down, forming the comets' tails spoken of.

The non-appearance of such tadpoles on the seat-risers is easily explained. It was due to the limited size of those panels. It is, of course, impossible to apply as heavy a coat of varnish on a small panel as on a large one, on account of the difficulty of working it with the brush. The natural result of this is, that the rubbing varnish on the seat-risers dried faster than the rest, and consequently there was no longer danger of such specks sweating out at the time the finishing coat was applied over them.

If our correspondent will carefully notice, the next time he rubs down a body, he will find little specks that appear to be rubbed level; but, when the rest of the surface of the panel presents a dead and lusterless appearance, these specks will be found glossy, proving that the varnish at these points is not yet dried through, and consequently liable to sweat out.

To avoid in future all liability of this trouble, you have only to follow the established custom of our best city shops, which is: *Never finish on any day you rub, and give a light supplementary rubbing, with flour pumice-stone (using very little of it), just before the finishing coat is applied.*

In the case of the job you now have on your hands, you will need to rub down two or three times, in as many days, and then revarnish. L.

HOW TO PRODUCE A CLEAN FINISHING COAT OF VARNISH.

BY WM. B. LONG.

Inquiry from a Buffalo Correspondent—The Finish of New-York Carriages Commended—Why Cannot all do Likewise?—A Detailed Answer—The Customs of the Best New-York Varnishers Described—What Does the Quality of Fullness Mean?—How to Produce Fullness—How Many Rubbing Coats are Desirable?—The Common Mistake of Excessive Rubbing—Necessary Preparations for Finishing—Causes of Specks in the Finishing Coats—Methods of Avoiding Them—Use of Duster Dampened with Oil—Ditto with Varnish—Flat Varnish Brush Dampened with Varnish—Silk Ditto—What to do When Specks Actually Appear—The Latest and Perfect Cure—The Magnet Method Devised by Fred. A. Rounds.

INQUIRY.

BUFFALO, N. Y., Dec. 4, 1884.

EDITOR OF THE HUB—DEAR SIR: Recently I had occasion to visit your city, and, as a carriage-maker, I took a stroll through the different carriage repositories to see the styles, and to pick up any new ideas that I could.

The general appearance of the work in the best city repositories attracted my attention, and especially the painting and varnishing. I was particularly interested in the latter, as this is my branch of the trade, and I was very much struck by the fullness and absence of specks or grit.

We have always prided ourselves here on striving to get up as fine a class of work as possible; but, after my late visit, I am compelled to admit that we fail in this particular, as compared with the New-York standard. Our varnishing certainly does not show the same fullness or the same absence of specks. Such perfection as I saw in the best New-York repositories is what I am striving for and must attain. Can you help me to get there? B.

ANSWER.

Our best New-York paint-shops have long been famed for the fine quality of work turned out. Still, good varnishing is by no means confined to this city. All over the country, wherever the constant aim is to produce the best work possible, and the necessary care and attention are given to every detail, the same results can be produced. There are few secrets about the matter, and these few we propose to give away in this article.

The quality of "fullness" in varnish describes that depth and luster which it always ought to present, in its character of a counterfeit presentment of a sheet of plate-glass, covering and protecting and enlivening the effect of the paint beneath it.

The best effect in respect to fullness is usually obtained by our New-York painters by the application of three coats of rubbing varnish, with an allowance of four days between coats, and followed by a carefully applied finishing coat.

The rubbing coats must be applied full, and they must be as free as possible from brush-marks and specks, so as to produce the desired surface with the least amount of rubbing, thereby allowing as much of the rubbing varnish to remain as possible, which unquestionably helps to give that effect of depth or fullness which is so desirable.

Many varnishers make the mistake of rubbing down their under-coats too much, and, by so doing, they not only unnecessarily increase the amount of labor, but permanently injure the effect of fullness in the completed job. Our correspondent should look to this point.

We come now to the subject of specks in the finishing coats. Many are the devices resorted to by varnishers to free their work from this defect. Below we mention some of the chief conditions to be observed as preventives.

In the first place all the rubbing coats must be as free from specks as possible, and be thoroughly dry, so that there will be no liability of their sweating out.

In the next place, the last rubbing must be followed by a thorough washing-off, so that every particle of pumice-dust shall be removed. For the last washing the varnisher should use a sponge and shammy specially dedicated to this purpose.

We are now ready to dust off and then apply the last finishing coat. But, at this point let us again ask ourselves: Are we quite certain that every particle of dust has been removed from the panels? It is well to use the utmost care at this delicate stage of the business, and painstaking varnishers among our acquaintances have tried all sorts of devices just here to secure perfect immunity from the presence of the last few specks, which experience shows may still remain, although invisible to the eye until the flowing varnish has taken them up and magnified their effect. We name below some of the more successful of these many devices that have been resorted to by our New-York friends.

A oils his duster. He applies a few drops of sweet oil to one hand, and then rubs it between the two palms until well distributed. He then rubs the tip of his bristle duster lightly over the palm, until it has taken up a little of the oil. With this duster he then goes lightly over the

panel, and the oil helps it to take up any remaining particles of dust or lint. This is fairly effective.

Some varnishers may object to the foregoing plan on the ground that any oil left by the duster on the surface would interfere with the drying of the finishing varnish. The amount applied, however, is too minute to cause any trouble of this kind.

B substitutes varnish for oil, and with this prepares his duster in the same manner as above described. This, to our mind, is preferable to the first method, and for the following reason. It has been found that, unless special care is observed, the oily duster is liable to remove specks from one panel and then let them drop on the next one. The varnish, on the other hand, being more adhesive, holds more securely what it once takes up.

An objection to both the above courses is, that it necessitates washing out the duster every day. To avoid this, C dispenses with the duster altogether, and in its place uses a flat bristle varnish brush,—for instance, the one with which he has just varnished a roof or arch. This he passes lightly over the panel,—of course, after it has been carefully scraped out, and allowed a half-hour or so to get tacky.

This latter is the latest of the three methods, and we consider it the best of them. It is now in constant use in several of the best of our New-York varnish-rooms, including, no doubt, some of those which turned out the work so much admired by our correspondent; and although it is still held as a kind of state secret by some individuals, we think we break no confidence in giving it away to our Buffalo friend.

There are still other methods of removing the last of the dust remnant; D, for instance, prefers the use of a piece of silk, such as a fragment of an old silk curtain, 6 × 8 inches. After having carefully shaken it free from dust, he pours a little finishing varnish on it, and rubs it between his hands until the varnish has saturated it through and through. Then, with his hands, he further manipulates it until all surplus varnish is removed, and it is simply dampened with varnish. Having folded it up in a square wad, he carefully wipes it over the panel. This does the business very effectually, and, when used in conjunction with the dampened flat varnish brush already mentioned, it seems to fill the bill. We prefer this method to any of the foregoing.

The next question that arises is, What shall we do when specks are actually present in the finishing coat? Of course we must remove them as far as possible, but this is always a delicate task, and the whalebone picker, heretofore used for the purpose, was quite as likely to prove of injury as of benefit. Just here we have a point to suggest which we look upon as particularly valuable, and it is quite new. We have no desire to claim the credit of originating it, and we will therefore state that we are indebted for the information to Mr. Frederick A. Rounds, master painter with the H. H. Babcock Buggy Co., at Watertown, N. Y. The way he happened to communicate it to us was as follows:

During a recent visit to the buggy works above named, our attention was attracted by the entire absence of specks in the finishing coats of varnish, seen both in the repository and paint-shop.

"How," we asked, "do you manage, Mr. Rounds, to secure such freedom from specks?"

He quietly led us into his varnish sanctum, and picked up a small round red-sable blender, about $\frac{1}{8}$ inch long, and sharp-pointed, such as heraldic artists use for filling in the body of their ornaments. He next led us over to a closet, and showed us a small heap of gummy stuff that was at one time finishing varnish.

"This," he said, "is the scrapings from the top of my varnish-stand, including that which runs down the side of my cup, and the droppings from my brush. I scrape off such leavings every day, and add them to this heap. Then, when I am all ready to varnish, I break the gummy mass with my finger, and apply a little of it to the point of my little sable pencil that I showed you. When my panel has been flowed over with the finishing coat, I then hunt out all the specks that may appear, and gently touch each with the sticky point of this prepared pencil, which draws them out as surely and as slick as if it were a magnet going for iron filings. The slight indentation thereby left in the varnish immediately flows out, and the result is a perfectly full, round, even surface!"

We have since given Mr. Rounds' ingenious method a full trial, and many of our friends have also tried it on our recommendation. The report of all is unanimously to this effect: *It is a great success*; and Mr. Rounds deserves the hearty thanks of all his brethren varnishers for devising so simple a cure for so serious a trouble, and for allowing it to be given thus freely to the public.

W. B. L.

ANOTHER BRUTE.—Jinks: "Look here, Binks, old boy; awf'ly jolly party of us going down to the boat race in a drag. Going to take the Dashington girls. Come?" Binks: "Like a bird! Er"—(whispers)—"Goin' to take your wife?" Jinks: "Er—no—er—too much excitement, don't yer know. Don't believe it does women any good."—[Exeunt ambo, winking.]—*Fun.*

NEED OF AN APPRENTICESHIP SYSTEM IN CARRIAGE PAINT-SHOPS.

BY A. P. DAIRE.

Present Lack of Skilled Painters—How Painters are Now Made—Painters that are Not Painters—Lack of Interest on the Part of Employers—Signs of the Times—Growing Demand for Skilled Labor—How to Secure Such—Six Roads Pointed Out—Boy Apprentices Required—How to Manage Such Boys—Five-year Indenture Advised—Regular Course of Instruction for these Five Years Particularized—How About the Apprentice's Wages?—Suggestions to Boss Painters—Classification of Painters—Comparative Wages of the Different Classes—Defects of Trades Unions—Apprentices Deserve Hearty Welcome as the Solution of the Whole Question.

WHILE the question of apprenticeship is under agitation among the carriage manufacturers, I hope that readers of *The Hub* may not find out of place a few words on this important subject from a carriage painter of nearly twenty-six years' standing, who commenced at the foot of the ladder by grinding paint, lighting fires, cleaning shop, etc.

Painting, so far as carriages are concerned, is expected to please the eye, show off the rest of the work to the best advantage, secure the attention of the customer, and it is, practically, the foremost aid by which the sale is secured.

A stranger to the business of carriage-making might think that this department, above all the others, was sure to be most remunerative to the artisan. But such is not the fact, and employers and workmen alike will bear me out in this assertion. And why? Because nine-tenths of the so-called painters are not painters in the true sense and meaning of the name. In saying this, I have, no doubt, ventured on a hornet's nest, and am likely to be stung. I will, no doubt, be called upon to rise and explain, and I will therefore briefly answer now, and will be prepared further to go into details whenever my fellow-workmen want to discuss the question upon its merits.

When a physician undertakes to cure a patient, he first studies the disease, and if there is a sore spot he will put his finger on it and point it out. In the same manner I want to put my hand on some few points.

I, as a painter, have worked at my trade all my life. As a boy, I worked at all the drudgeries, but I tried to utilize what little intelligence had been given me, and I have since passed years in practice with pencil and brush, bought books and read them, too, and offered little courtesies to the skilled workmen, that they might teach me what I could not understand. After years of such work and study, I find myself capable of taking a job from the hands of the smith finishing it, and putting it out on the street ready for use, so far as the painting is concerned, without the help of any other workmen; and I may be allowed to add that competent judges declare it to be first-class work. I therefore, I hope, have some right to point out weak points that may be observable in my craft, so long as I also show a desire to try and ameliorate the condition of fellow-members of my trade. With this introduction I beg to be permitted to offer some words of advice to both employers and employes on this question of apprenticeship in the carriage paint-shop.

Painting in large shops, and by large shops I mean all that employ more than four or five painters the year round, is now usually managed by the "specialty system," which is no more nor less than the employment of human machinery, guided by one, two or three skilled workmen. The rest are helps—or "laborers," as the English painters call them—and have no right to the name of coach-painters. Perhaps some of these helpers have made a show of serving time, but the majority are usually either young men or middle-aged men, who, having no trade and no settled occupation, have at the time of a special rush of work and a limited supply of skilled mechanics, drifted into the paint-shop with no definite idea of learning anything, but who have by hook and crook picked up a certain branch of the trade. They may even become skilled at that branch. I will not deny that. But they go so far and no farther, their ambition being limited to that.

Many such a helper has a family depending upon him for support, and he is too old to spend time working under instruction. He earns more at that than he would at common laborers' work. He expects later on to quit painting and get on the police force or into some other sinecure. He takes no thought of the future, so far as the painting trade is concerned, and has no ambition in his heart, but steps into the shop, takes hold of one small end of the board, lifts it up just so far, becomes useful so far and no farther, and there remains. You will find him at the same job to-day, to-morrow and next year.

That such a worker fills a place in the hive of the painting industry, as it is carried on in the large shops of our leading carriage centers, I will not deny; but that he is a painter, I say no! He is merely a cog in the wheel, the balance-wheel being the head painter. He may leave, and one of the cogs of the small wheel is temporarily lacking, but the machinery keeps on turning. There may be slight jar as the adjoining

wheel reaches that space, but it is hardly perceptible, and very little labor repairs the break, for another man, and most any other man or boy, can fill the place. He never raises the standard of the craft, and never can.

But let me tell you what such a workman can do, what he has done, and what he will do as long as the system of the specialists is carried on. He has driven the apprentice out of the shop, and to-day there is hardly one out of every twenty of our young men working in the paint-shop who will ever become an experienced and first-class painter. You must see that the selfish system of these large establishments is not very encouraging for the future. They are not looking forward to and preparing for their needs in times to come. If all shops take the same course, where will the next generation get its first-class finishers, varnishers, strippers, ornamenters, etc.?

It is the old story of the big fishes eating up the little ones. The larger shops draw away the good man that another shop has educated. That man goes a step lower, and so on until you come to a passable good man in some country shop, who only wants a better chance. He, too, is drawn away, and finally the country boss puts a boy in the varnish-room to wrestle with the deviltries of varnish, and the boss wonders why his work does not look as fine as city work. During the time the new finisher is practicing and learning his trade, the boss is paying very dear for his system, or lack of system, as you will admit; but this is the only way, except in rare instances, that our general workmen get their schooling and finally their trade, and upon this class of men we have to depend for our specialists of high degree.

Now let me ask the wholesale manufacturer whether he expects his source of supply will always remain. Will you always need such a large force of hands? If so, where are the recruits to come from? Will you always build to such a large extent that class of work called "export," where inferior labor is so much in demand? I think not. If not, the trouble will only be increased, for then more first-class workers will be required. As our American towns grow to cities, and our cities to larger ones, and our Western settlements get more populated, manufacturers of carriages will unquestionably continue to spring up all over the land, and take the cheap trade away from you,—at least, in part. They will do what you have to do,—they will supply the home trade with a higher grade of carriages. All over the country the taste is now drifting toward finer and better classes of vehicles. As a result, I think, the large cheap shops will gradually decrease, and the small country shops will increase in the same proportion. But when these times are upon us, or our successors, where will the specialists be, and where shall we get our skilled painters? When other shops are busy building finer grades of work, needing all their skilled labor, and competing for it with dollars, some of our present manufacturers will, I think, get left, and there will be an urgent call for good workmen in your shops. How can we prepare for this future demand? How can the present lack of coming men of the right sort be filled? I beg to offer the following six suggestions:

1st. By going to work and preparing for your future needs within your own shop and your own employés.

2d. By organizing in your shop a good, healthy and just system of indentured apprentices.

3d. By promising boys a trade from beginning to end, and then keeping that promise.

4th. By making the term of apprentices as short as you can, without injury to yourselves, or the trade, or the boy.

5th. By organizing a system of practical study for the boys, and encouraging them therein.

6th. And finally, by having in the shop a system of promotion by right of succession and capacity, and not by reason of accident or partiality on the part of your foreman.

The reader may exclaim right here: "Well, my dear fellow, show us how to do these things, if you can!" I do not know that I can: I do not know that it would succeed if tried; but I will present below an outline of the method I would suggest—given for what it is worth.

If I wanted a boy, I would not run to the New-York *Sun* and advertise "Boy Wanted;" but I would go to some of my workmen and ask them if they could recommend to me a good, healthy and intelligent boy, with a fair amount of common school education. As soon as I had secured my boy, I would make a written contract with the parent, drawn up in accordance with the law of the State, binding the boy to me for a certain term, say five years, with the understanding that I was to pay him enough to at least cover his board and perhaps clothe him, say, \$5 a week, keeping back a weekly sum of, say, 50 cents. At the end of the first year, I would pay him two-thirds of that sum, but he should forfeit the remainder if he left me before his time was out. At the end of the second year I would do the same again, and so on until his time was out, when we would finally settle up accounts. I would then give him a certificate stating that he had served a full term of apprenticeship with me.

As to the management of such a boy in the shop, I would suggest the following course of practice:

1st year. Let the boy do all the small chores around the paint-loft, such as lighting fires, cleaning tools, running errands, priming wheels, and such small jobs as will accustom him to the use of paints and brushes, besides helping the roughstuff rubbers sufficiently to learn that process.

2d year. Let the boy putty up, sandpaper, color, and sometimes color-and-varnish, thus leading him gradually to learn the bringing up of carriage-parts. At this time another boy should be appointed to do the chores that the first boy did the first year. I would also give the apprentice, during his second year, some practice in striping.

3d year. Now send him into the body paint-room, as a helper to the painters there; and give him practice from the filling-up process to the color-and-varnish coats. Occasionally, also, let him do small panels and under-parts of bodies, that he may be led to gradually learn all the surfacing processes employed in body painting.

4th year. Now let him act as a general handy man around the paint-shop, and whenever there is a rush at any kind of work, put him at that, so as to break him in on all the branches of painting. This year is most important for him and for you, for now he must begin to show something of a mechanic, if it is in him.

5th year. Now you should put him with the varnishers, to help in both the gear and body rooms, and to enable him to learn something of finishing. Just here, I would say that I think it only right that the finisher should get a small percentage of the boy's wages, during this last year, if he wants to learn the art of finishing. That is the practice in France and England, where it works well and suits both parties.

We thus come to the end of our written agreement with the apprentice. We can now hire the young man as a journeyman to work for us at whatever we prefer, giving him such wages as he may be worth to us, according to the way he has used his opportunities. He is perhaps not yet what we would call a first-class workman, but he has a solid foundation to improve upon, and will, at any rate, make a good shop-hand, and he can properly be called "a coach painter." His wages should be raised each year during his apprenticeship, but not up to the standard of a regular workman.

I do not mean to say that a young man thus instructed would at the close of his period of apprenticeship be able to go into Brewster's finishing-room as a competent finisher, but I do say that he would know practically a great deal more about carriage painting than many men do now who are working regularly at painting in most of our large shops; and he would, if possessed of ordinary intelligence and perseverance, be prepared to eventually make a good general workman, capable of doing a job, from the priming to the finishing coat, in a workmanlike manner.

I would put new boys on as fast as their predecessors were promoted, say one or two each year; and in time, I think, I would succeed by this method in getting as good a set of painters as any shop. I could trust them, too!

I would at the same time encourage and help my boys to learn drawing and post themselves generally in all the other branches of the trade. I would endeavor to treat them justly, and require my men to do the same, and I would try to have them elevate themselves.

In the next place, whenever a workman came to me for a job and he was a young man (the system being in working order), I would require of him a certificate from the shop where he was previously employed, to show that he had served his time faithfully under his agreement.

I think that the above system, carried out faithfully by the leading shops of the United States, would work well, and that, after a few years, a good class of mechanics could be introduced in our paint-shops, in whom the employers could place full confidence.

A word now to foremen and journeymen painters. I am aware that most carriage painters of our city shops are strongly opposed to apprentices. They say that the apprenticeship system keeps men out of the shop. When they say "men," they cannot mean skilled workmen, for my experience is that the skilled workman can always enter a shop and hold his job, being in demand at all seasons. That argument is not a good one. If by "men" they mean any and all who have arrived at the age of manhood, they then imply that we might go to Castle Garden and get gangs of Italians and put them in the shops; but if we are to open the doors of our craft to a crowd of unskilled laborers, we might better let in the young, active and industrious boys, whose only fault is youth, which they are outgrowing every year. They will eventually become men, and they will then have the advantage over all others that they will possess the capacity lacked by the others, excepting in rare instances.

Why should you, as a painter, after having spent your time in learning your trade, not require the same of others? Such a course would only be self-protection! Would you not also be better seconded in your work by having good help? Why, certainly! It is always better to have a good brush than a poor one, and a good handler of the brush than a bad one!

Again, would it not be better for all concerned if we, as painters,

allowed ourselves to be classified, for instance, somewhat after the following manner: Varnishers and finishers on bodies, including all who have held that position in a responsible shop for at least one year, and who have a written guarantee to that effect. Call these "first-class," and let their wages for that position be—let us say, for example—\$4.00 a day. I name a figure simply for the sake of the argument. Next come the stripers and gear finishers, for instance, \$3.50, composing the "second-class." Next, body painters, up to clear American varnish, \$3.00, as "third-class." Next, gear painters, say, \$2.50, as "fourth class." Then roughstuff rubbers and sandpaperers, say, \$2.00, as "fifth class."

With some such classification as the above, it would be easy, whenever a man came to apply for a job, whatever the position might be, to settle upon the fair amount of wages, by making no difference whether he was a striper or a finisher, but giving him the same wages allowed to other men working at that particular branch to which he was put. It might also be well to arrange that, if he did not have his card proving him a painter, he should not be employed.

Would not some such general management of the affairs of your trade as painters be more likely to advance your welfare, my fellow-workmen, than your trade unions? In the latter you, the skilled workmen, have more or less dead load to carry when you strike. Inferior workmen, calling for the same high wages which you get, and which the bosses would willingly grant to equally skilled mechanics, often force the boss to resist the strike. For yourselves, as well as for them, this unwise and unjust condition ought to be avoided, for it is the principal reason why strikes are so generally a failure, while just demands are almost always met satisfactorily without the painful necessity of a strike.

Why, in my experience with coach painters' unions, I have seen men who could not properly put a coat of lead on a carriage-part, refuse to be so classified, but vote that only one grade of painters be acknowledged, thus allowing them to call for the same wages as body finishers, stripers, body painters, etc.; and what was more, they readily gained their point in the lodge-room, for the reason that they were in the majority over the skilled painters, upon whose shoulders they expected to ride into big wages. Of course, the result was that they eventually drove out of the union that better class of workmen, and, themselves being left on their own bottom, they could not stand, and the strike failed.

As a conclusion of the whole matter, let us, as true workmen, and in justice to ourselves individually and to our trade, having both our own and our craft's welfare at heart, welcome the apprentice into our shop! Let us promptly give him the hand of fellowship, and endeavor to make his stay with us as pleasant and fruitful as possible, thereby promoting the growth of a healthy body of workmen in our trade, remembering always that the workman of to-day may be the employer of to-morrow. Let us, each one, stand upon his own merits, but classify ourselves according to our just capacities, that we may demand just remuneration for our labor. A good example on our part will help to create proper ambition in our apprentice to likewise work and advance, knowing that the time is drawing to a close as they near the end of their time, and that their best interests may be trusted in our hands. When that day of mutual helpfulness and laudable coöperation has come, the true coach-painter will then be known from the "scab," and he will be respected and appreciated by the employers of skilled labor. A. P. DAIRE.

Hassard-st., NEW-BRUNSWICK, N. J.



HOW TO TRIM THE BACK OF A COUPÉ-ROCKAWAY.

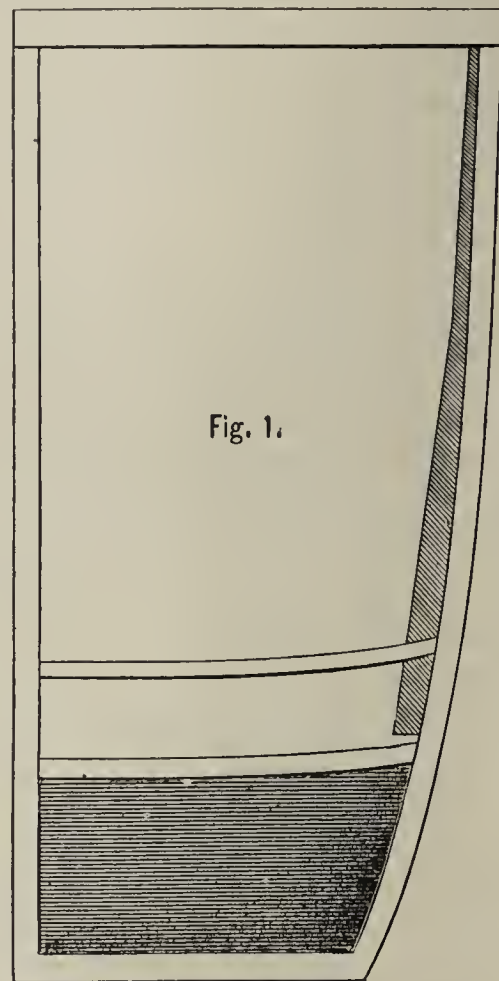
As the columns of *The Hub* are courteously opened for any questions which may be asked for information, as well as for any reasonable ideas or suggestions which may be advanced concerning methods of interest to the craft, I embrace the opportunity to ask a question and also to present a few ideas, at the same time trusting that readers will not be severe, but will generously accept them for what they are worth.

My question is this: Are drop-lights at the back of a light Curtain-quarter Rockaway of any practical use? Moreover, are they demanded by customers? or are they merely introduced to carry out a whim on the part of the builder?

I have frequently asked the above question of those who ought to know, but failed to obtain a satisfactory answer. The usual answer is:

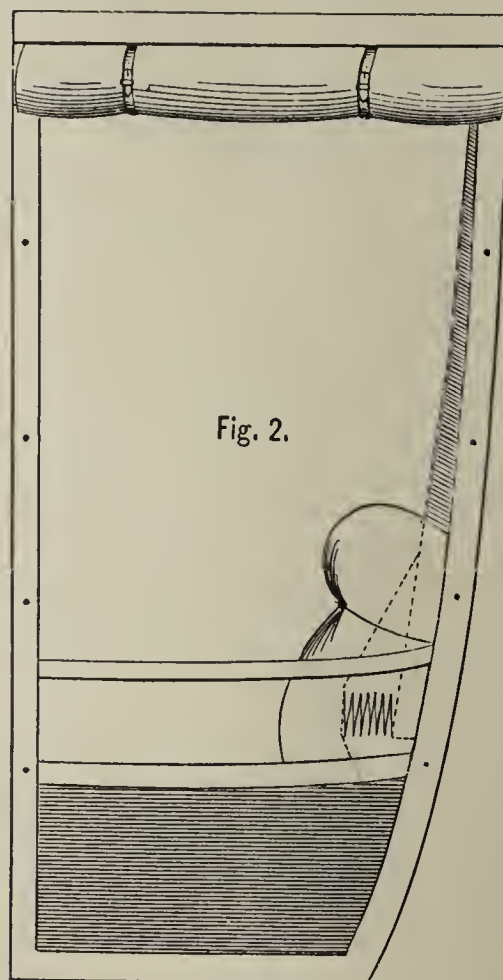
"Why, it's the style!" That argument appeared to suffice with the majority, but it failed to convince this inquirer.

Let us look at the subject from another point of view, and try to balance the points of advantage gained, with others that are lost. Let us also see whether some other method of construction than the one now employed could not advantageously be introduced, and fill all requirements.



Admitting that drop-lights are introduced for the sake of ventilation, we find that other classes of carriages that are even more close, such as landaus and coupés, are not usually provided with a drop-light at the back, and it would seem that a light rockaway, provided with roll-up curtains at the back quarter, would afford sufficient circulation of air without an open window at the back. Would it not?

Again, the pockets for the lights at the back of rockaways are invariably a source of annoyance, presenting difficulties in the trimming which



are impossible to overcome, and I unhesitatingly assert that these cannot be removed until the drop-light itself, as the root of the difficulty, is dispensed with. Such bodies afford a limited amount of seat-room, and the aim should be to introduce a style of upholstery that will least encroach upon the seating capacity, and still be moderately comfortable; and when the side curtains are rolled up, a light appearance should be presented, in harmony with the lightness of the body. These conditions, however, cannot be attained when a pocket for the drop-light is present,

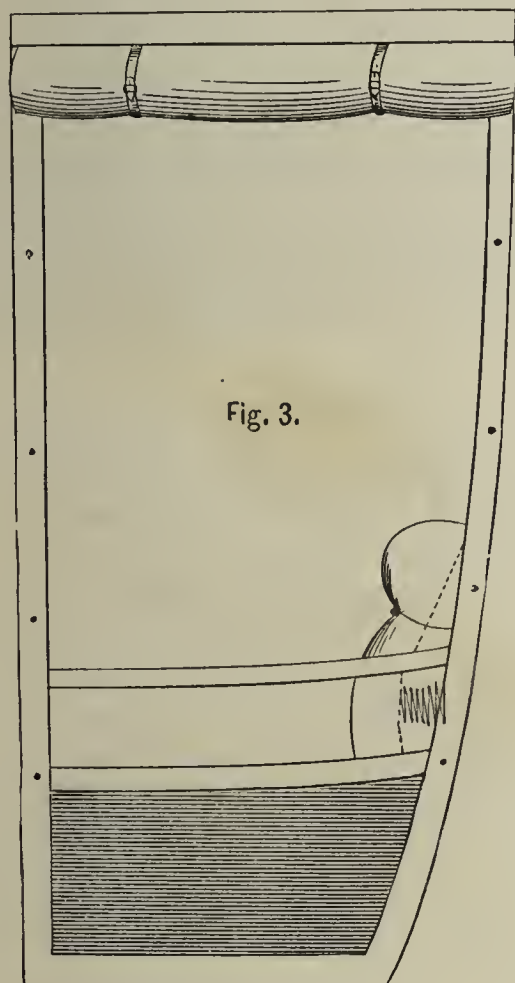
which itself projects into the seat-room; and any style of upholstery overing this, no matter how light and thin, must still further encroach on the comfort of the occupant. The difficulty is further increased by the introduction of springs in the back, even though they are drawn so close that no elasticity is present and they fail totally in their purpose.

I have tried all styles of upholstery to render such backs somewhat elastic, aiming both to economize seat-room and present a light appearance from the sides, but I must confess that I have failed in these essential points; and, according to my observation, others have experienced similar failures.

I will further illustrate the above points by the aid of the accompanying sketches.

Fig. 1 represents the back quarter of such a rockaway before being trimmed. The diagonally shaded portion shows the projection of the window-pocket and runs. It will be seen that the encroachment of this pocket upon the seat-room is already well marked, particularly toward the bottom, where it projects considerably ahead of the back corner-pillar.

Fig. 2 suggests the general appearance the same quarter would present when trimmed, and it does not require a great stretch of imagination to perceive the heavy appearance that results, or the serious diminution of the seat-room.



To remedy the defects above pointed out, I formerly suggested the advisability of discarding the springs and thereby reducing the excessive thickness to this extent. My suggestion, however, was not favorably received. The claim was set up that buyers demanded spring backs. On the other hand I received the suggestion in return that the springs should be still more compressed, no matter whether any elasticity remained or not. Under protest, I acted on this advice, but the result naturally proved unsatisfactory. In fact, the backs thus made would require labeling: "This back contains springs," to distinguish them from springless ones.

Can any of *The Hub's* friends shed light on this subject? Can some sort of spring back be adapted to such bodies, that will contain a moderate amount of elasticity, present a light appearance from the sides, and not encroach upon the seat-room? Such an invention would be a boon to the craft. As for myself, I have serious doubts whether these combined results are attainable in Coupé-Rockaways, and I believe others have experienced similar failures, and come to the same conclusion that it cannot be successfully accomplished until the root of the difficulty is entirely removed. The remedy which I will now suggest, and which I believe to be the only sure one, is to discard drop-lights and substitute stationary lights. By this simple means the whole difficulty is at once solved. The need of a pocket is then dispensed with, and that extra amount of space allowed for the springs, besides that gained by the convexity of the back panel. The appearance these parts would present when thus trimmed is shown by Fig. 3.

By this arrangement, we allow the same height for the springs and thickness of squabbing, while a much thinner appearance at the sides is readily perceived, and there is a gaining of nearly 3 inches in the depth of the seat-room.

I trust that the above suggestion will not be hastily discarded on the ground that a window which can be opened or closed at will is of more importance than any advantages a stationary light may present. The mere pointing out of defects and difficulties is something unworthy of much consideration where no remedy or improvement is suggested by the critic. I have a suggestion to offer here, and although well aware that it is open to criticism, I beg to add that I fail to see any just reason why such windows cannot be constructed to slide toward the roof, with a spring attachment at the sides to hold them in position, in the same manner as is employed in railway carriages and dwellings, instead of dropping them into a pocket provided below. There is sufficient height to the body to admit a window of ample dimensions, without materially altering the appearance or cost, while no more space or projection would be required above the window than in the present method. Moreover, as no pocket would be present to encroach upon the room where most needed, ample space would then be afforded for springs and back squabbing, and these would present the same appearance as the trimming at the sides, while the gain in seat-room would be the same as by the use of the stationary window represented in Fig. 3.

These combined advantages would certainly appear worthy of consideration, and I hope to hear the opinion of others concerning the points I have advanced.

N. H. T.

DESIGN APPLICABLE TO THE TRIMMING OF HEAVY CARRIAGES.

BLOCK AND POINT FINISH FOR HEAVY WORK.

This represents a neat design of trimming for heavy work, with block and point finish. Fig. 1 shows the quarter; Fig. 2, the back; Fig. 3, the cushion and seat-fall; and Fig. 4, the door.

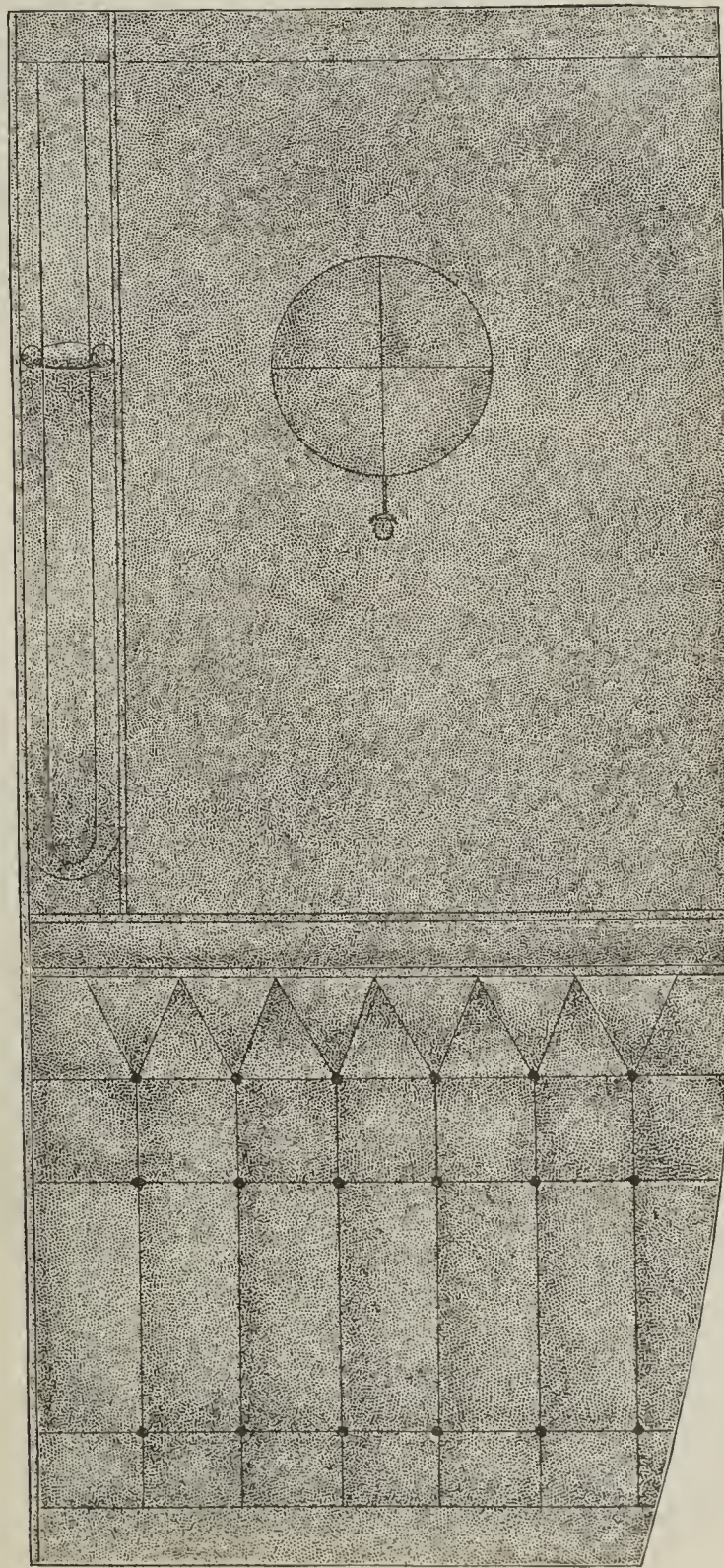


FIG. 1.

In making up this pattern let the square be completed so as to leave the half diamond, and allow sufficient fullness so as to form the square and point finish as shown.

The upper and side quarters are made on two-ply buckram, pasted on

muslin drawn on a frame so as to make it convenient for the workman. It will not require any backing on the side and upper quarter, such as is usually employed in trimming heavy work.

The back, cushion and fall and parts of the side quarters are trimmed

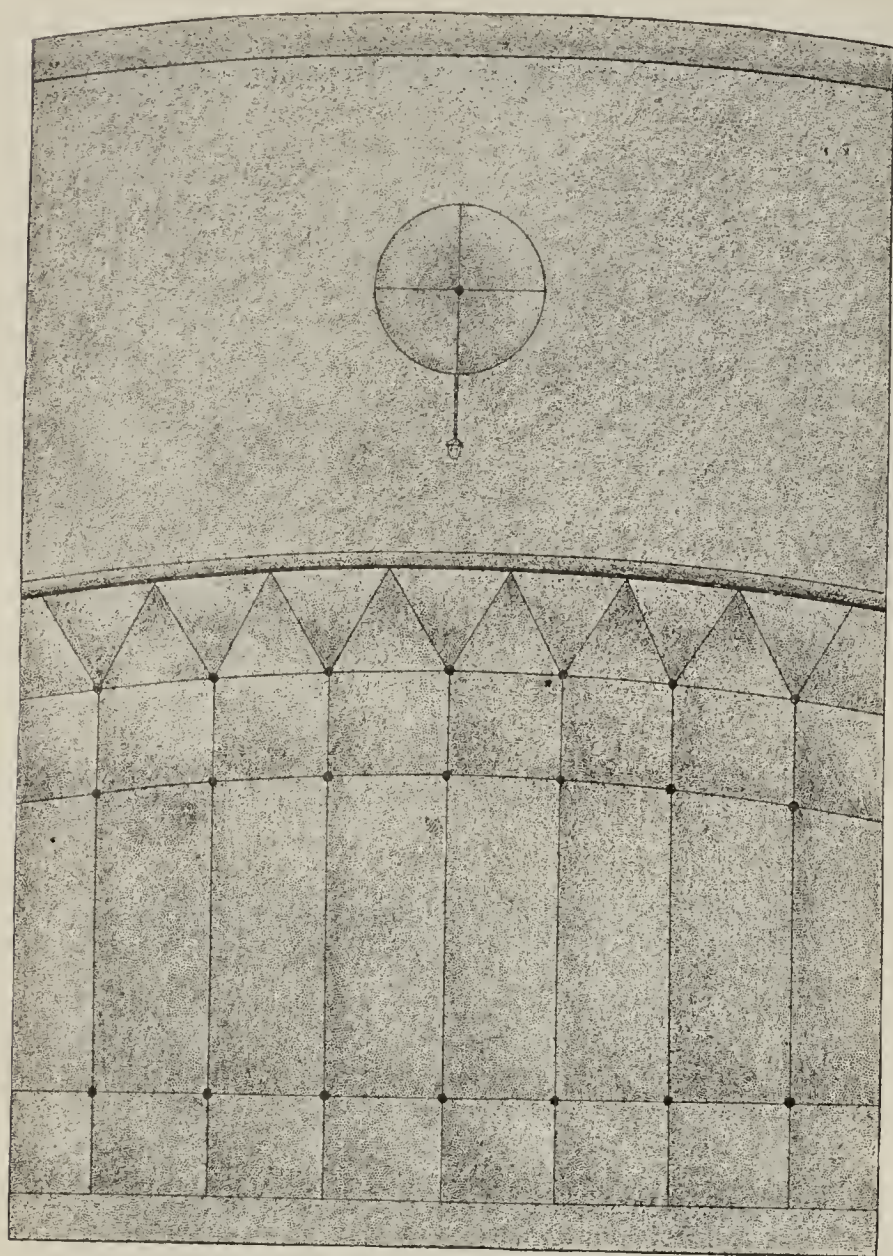


FIG. 2.

with goatskins, with plain broad, seaming and pasting laces, and plain rug carpet and tufts. The door trimming Fig. 4, is the same as for the back and cushion.

The upper quarters are perfectly plain, and made with one layer of hair; and the cloth is lined with wadding and drawn smoothly on.

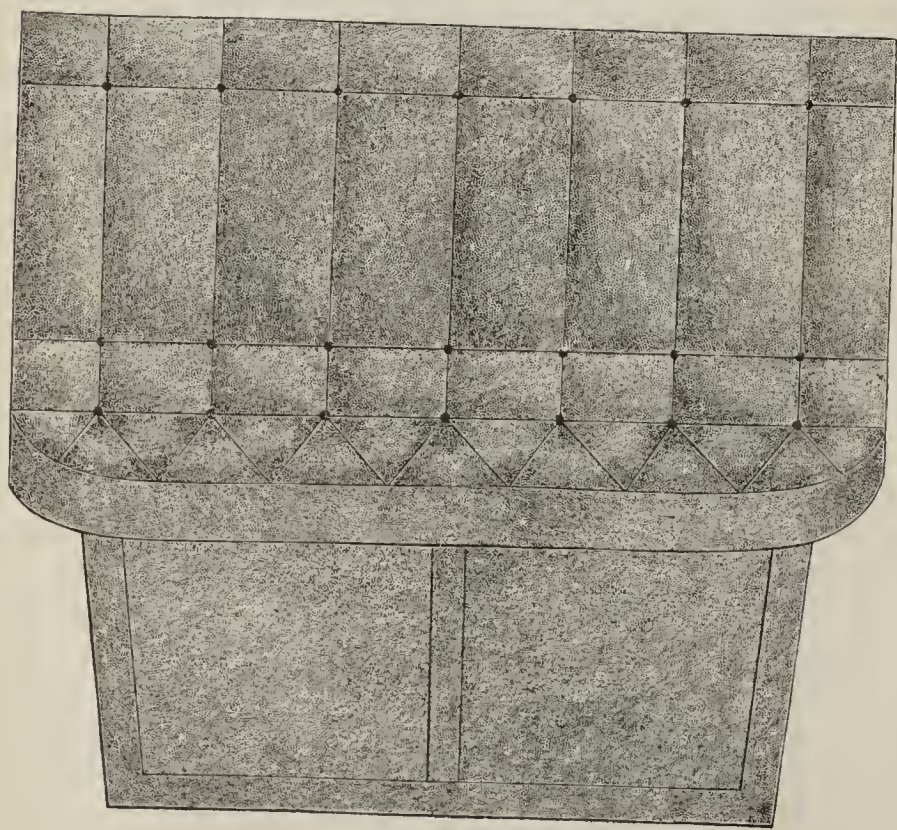


FIG. 3.

Press all the creases from your cloth if you want your work to look neat. The pads over the pockets and back glass are made plain, with one tuft in the center. The fall is also plain, as it is not in a prominent place.

The beauty of this design is confined to the careful execution and finish

of the points and squares, and you will easily catch the idea. Don't force your points and squares, but lay your work off accurately, so that every point and square will work into its place.

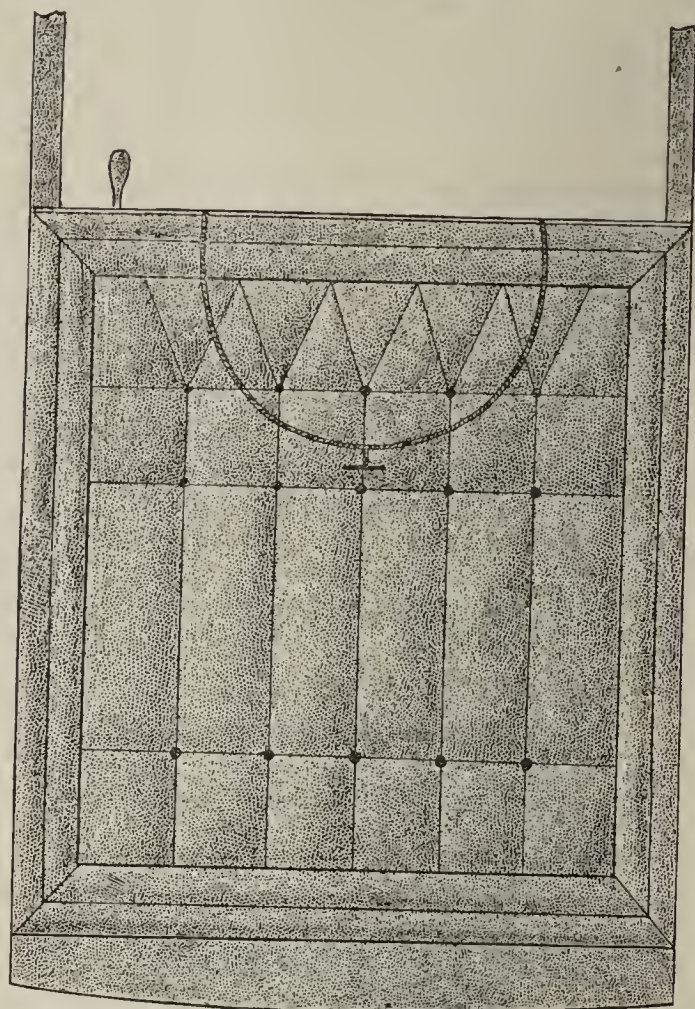


FIG. 4.

HOW TO ECONOMIZE TIME IN TRIMMING HEAVY WORK.

Having finished our description of the above design, we will now call attention to our plan of conducting the trimming of a job so as to make every lick count one.

The first move is to paste up all the rough work required. After, or while it is drying, we seam up the seaming-lace, cover the handles, make the fence-strings, paste out the glass-holders, paste the cushion front and get out the dickey-seat skirt and fall.

By the time all this has been done, we are ready to fit the roughstuff. After everything is fitted, proceed to lay off. This being done, cut the skins, cloth or whatever material may be used. When this is all cut, fit the broad-lace for the doors and falls. Then make up the pieces that require this lace, such as door-pads and falls. After the door-pads and falls have been made up, then paste the lace down to the above-mentioned parts; and they will have plenty of time to dry by the time they are wanted.

The next step is to make up the back quarter and all other work that belongs to the job before we begin to put in any of the trimming. When this is completed, put in the head-lining and roof lace. Then commence to paste around the places required; and, while these places are drying, bind the rocker covers, and so on.

Have everything ready to hand, and don't stop until the work is all in. The writer has never approved of the plan of making and cutting and putting in one piece at a time. Considerable time is saved by having everything ready. Our plan is to have all our work made up before putting a single article into the job.

W. H. E.

AN UNFORTUNATE CABMAN.

THE cab drivers of Paris seem to have been peculiarly unfortunate latterly, cases being continually reported either of their cabs being stolen during their temporary absence to refresh exhausted nature at a wine shop, or of the men themselves being brutally assaulted and robbed. Only the other day there were two cases of this kind, one of the cabman in question being cruelly ill-treated.

He was hailed by a couple of respectably-dressed individuals during the evening, and told to drive to an address near the Bois de Boulogne. Probably something in their appearance or manner aroused suspicion, for the cabman, on reaching the Point de Jour, declined to take them further unless his fare were paid for the distance already accomplished. Twenty francs were handed him, and he drove on; but outside the fortifications the men called to him to stop and give them their change. While he was feeling in his pocket for his purse, one of the two struck him a tremendous blow on the head with a loaded stick, rendering the poor fellow senseless. On recovering consciousness he found himself tied to the back of the cab with the reins, all his day's earnings having been taken from him.—*London Standard*.



TRADE GOSSIP OF THE PAST MONTH.

IN New-York City and suburbs, including New-Jersey and Connecticut (?), the carriage trade continues dull to stagnation. Sales of new work have been few and far between, and there has even been a let-up in that old standby: repairing. Up to the time of writing, no snow of any consequence has visited this vicinity, and sales of sleighs, as far as reported, have been unimportant. Prices, however, have been well maintained, which is one encouraging feature. As was expected, large numbers of workmen have been temporarily laid off, and nearly all the others have been put on reduced time. This action has caused no surprise on the part of the working forces, for they could feel its necessity as well as the proprietors, and they have accepted the situation with the characteristic good grace of the American workman so long as he understands causes as well as results. Dealers in carriage materials and specialties of all kinds have also reduced supply more nearly to demand, and are now giving attention to the preparation of fresher and more attractive goods with which to whet the diminished appetites of prospective customers. If it be true that past over-production has been the chief cause of present depression, as many still assert, this would seem rapidly to be losing force as one of the factors of evil. So far as we can now observe, a normal spring demand ought to be ample to clear the shelves of the dealers in materials, as well as the repositories of the carriage manufacturers. Let us hope that such a demand will occur, and that the wheels of trade may soon begin to move.

RECENT reports from the West indicate very general depression in the carriage trade, but the number of failures and business embarrassments has scarcely exceeded that of average years, which indicates that manufacturers have duly appreciated the situation and promptly adapted their expenditures to their decreased receipts. The feeling of our Western friends is perhaps best epitomized in the following letter, received from a Chicago correspondent under date of Dec. 15th, which says: "Trade is pretty quiet here. Still, it is better than it was a month ago. Carriage men throughout the West are doing very little at present. I was in Cincinnati last week, and the large shops have not yet started up, nor are they making contracts. Their usual time is in November and December, but this year it will not be before the first of January."

ONE of the most encouraging signs of these hard times is the increased care which manufacturers are now giving to the management of business. Every so-called misfortune no doubt presents certain compensations of its own, and the above is one that inevitably attends a prolonged season of business depression. The bookkeeping department, and particularly the "Profit and Loss" account, is now allowed to receive its full share of attention. Certain lines of work are thereby discovered to be unprofitable, and they are dropped. Certain unnecessary contingent expenses, so small individually that they attracted no attention while the factory was at full drive,—although, rat-like, they must have made serious inroads on the meal-bags,—are now smelt out and eradicated. Cheaper and better methods of accomplishing old results are now investigated, and put in practice. Reorganization and restoration become the order of the day. Where these results are attained, temporary stoppage cannot be looked upon as unmixed evil. It should mean increased ability and serviceableness of the entire working machinery of the factory and office, as soon as the time of action again comes around. And come it will!

DURING periods of stagnation like the present, there is a certain amount of encouragement to be derived from the fact that a business of diminished bulk, managed on principles of increased care

and economy, will often produce a more satisfactory percentage of profit to the manufacturer than the overgrown and cumbrous business of former years, which overtaxed the proprietor's efforts to supervise it in detail, and which, consequently, often drove him instead of allowing him to drive it. Granted that your trade during 1884 aggregated only \$50,000, while that of 1879 was a round \$100,000! It does not necessarily follow that your net proceeds have also been halved. If, instead of fretting, you have made the most of the opportunities following that condition of trade known as "quiet," carefully adapting the extent and quality of your product to the legitimate demand, properly economizing in all departments, and courageously maintaining your price-current, you may very likely have equaled your profit of 1879, besides getting all things in better shape. Remember that your own pot depends for its boiling qualities not upon the gross item but upon the net—a fact too often lost sight of, we fear, in the competitive struggle of American business life!

THE supervision now exercised in Great Britain over the appointments of those who supply the Royal households is thought to demand the exercise of increased vigilance, on the ground that the Royal Arms have been used recklessly by many manufacturers who, by imaginative freaks, have considered themselves authorized to supply Royalty. The Royal Warrant must now actually be granted before manufacturers or tradesmen are entitled to display the Royal Arms on their premises. One of the latest appointments under the new and more stringent law is that of Messrs. Atkinson & Philipson, coach-builders, of Newcastle-on-Tyne, who have been officially notified by General Sir Dighton Probyn that they have been appointed by Royal Warrant coach-builders to His Royal Highness the Prince of Wales. We understand that this firm recently made a park phaeton for the Princess of Wales's special use, and also a brougham and omnibus for their Royal Highnesses.

WHATEVER Mr. Henry Julian writes, is worth reading; and, in the course of correspondence relative to his recent lecture pamphlet, he makes the following observations: "I shall, indeed, be very much pleased should my lecture be the means of stimulating any of the members of the New-York Technical Class to study the principles of art. There is abundance of opportunity in our trade for displaying skill and taste, and I have no doubt that you have a large amount of latent talent among your pupils, which, if developed, could not fail to raise the character of their work, and by raising it, raise, perhaps, the character of the work of their district of their country. I do not believe that our race is one whit behind any other race in natural capacity for producing artistic work of the highest order. The race which has produced the greatest inventors, the first novelists, poets, and orators of the age, and whose painters, sculptors and architects are second to none, must have the imaginative faculty to a supreme degree, and where that faculty exists nothing is impossible in art. I venture to prophesy that in another generation our work will be as remarkable for beauty as it is for mechanical skill. Those who have the interest of the trade at heart should aid by pen and pence the efforts that are now being made to accomplish this. Your people have done some mighty things in material development and if they take up this matter of technical and art education with their characteristic spirit and energy, the result will be equally remarkable. The time will come when beauty will be an essential in all products, and the manufacturer who cannot give that essential to his work will have no chance in the open markets of the world."

EXPENSE OF KEEPING A DRAG.

WHY the cost of keeping a drag and team to work is so heavy, will be readily understood by a visit to suitable West End stables. Lofty coach-houses for the drag, besides which is the fourgon or exercising brake, and a single-horse or two-wheel brake. Besides the four horses used for a short trip, four more well-trained and matched horses must be kept as relays if longer journeys are attempted, say to Virginia Water or Ascot. These are sent forward the day before. A spare horse or two in case of accident, or for messengers, is generally kept; also harness, especially collars and bits, which suit and fit each horse. The grooms, strappers, and under-strappers are numerous; and the fodder and litter are supplied in almost wasteful profusion. Thus the reason of the high cost of keeping a drag is obvious.

THE CONFLICT BETWEEN CUSTOM-MADE AND WHOLESALE WORK.

REVIEW OF THE PRESENT SITUATION FROM THE STANDPOINT
OF A WHOLESALE MANUFACTURER.

OPEN LETTER OF INQUIRY.

G. H. BURROWS, ESQ., *President "The Standard Wagon Co.," Cincinnati, Ohio.*

MY DEAR SIR: During the past year we have received many inquiries from carriage-makers, chiefly those located in country towns, asking *The Hub's* advice as to the course which it is advisable for them to pursue in view of the steadily increasing competition on the part of wholesale manufacturers of low-price buggies for the trade,—whether to attempt to ignore such competition altogether and adhere to old prices, or to go into cheaper work and depend more upon repairs for a profit.

Our advice has been to the following effect, namely: *First*, that it means ruin to any small concern to attempt to compete with the wholesale buggy manufacturers on the score of price; *Second*, that the quality of the work produced by the local manufacturer should be raised rather than lowered, and special attention be given to the production of new and individual styles, including the best possible material and workmanship, at increased rather than diminished prices; *Third*, that it is worthy of consideration whether a full assortment of work made by some leading wholesale manufacturer may not profitably be kept on hand, to meet demands for such, and to realize any profit that may lie in that direction; and, *Fourth*, that increased attention should be given to the department of repairs, which should be pushed for all it is worth.

It has occurred to us that you, as one of the leading members of that Western center of the wholesale trade which has thrown such confusion into the camp of the local country carriage-makers, might have some helpful suggestions to offer in this connection, based upon your experience of the last few years; and we therefore take the liberty of addressing you this letter, as a general mark of interrogation, hoping that it may call forth from you some expression of opinion which you will feel justified in allowing us to make public.

We feel confident that you agree with us in deploring the present depression which is felt by the local builders throughout the country. We know that there is no intention or desire on the part of your house, or your worthy confreres in the wholesale trade, to push anybody to the wall. We think we fully appreciate the relations between your interests and theirs. Both classes of makers include honest, skillful and hard-working men, who are engaged in the attempt to gain an honest livelihood from an honorable calling. As long as any member of either class deals justly by his customers, and makes a fair profit on his year's work, no one certainly has a right to complain of him.

At the same time, it is unquestionably a fact that, to-day, the interests of the two classes conflict seriously, and that the workers in a small way are the sufferers. Is there not, we beg to ask, some possible solution of this conflict of interests, by which both the large wholesale and the small local manufacturers can merge their interests, so that each may be benefitted and the trade as a whole be benefitted?

If this inquiry happens to come to you at a time of comparative leisure, please give us the benefit of your experience in this matter. You have no doubt already given it careful thought, and we feel confident that a full and frank expression of your views will contain many items of interest, which we should be glad, with your permission, to make public.

Very respectfully yours,

NEW-YORK, Nov. 24, 1884.

EDITOR OF THE HUB.

* * *

OPEN LETTER OF RESPONSE.

CINCINNATI, Dec. 8th, 1884.

EDITOR OF THE HUB—DEAR SIR: I am happy in having the opportunity of replying to the inquiries contained in yours of Nov. 24th.

It is not to be wondered at that the large number of local manufacturers of buggies, carriages, etc., who, by long years of careful attention to business, have built up a well-earned reputation, should feel very much as if an enemy had invaded their territory, when they see car-load after car-load of well-made and low-priced work scattered over the country,—and, worse yet, see it purchased and more called for, at prices that defy competition on their part. The first thought of such a builder is no doubt to this effect: "Well, my customers are all supplied, no more buggies will be wanted for years, and, except as a repairing shop, my occupation is gone!"

Within my own observation many worthy makers have seriously crippled their business by giving way to a feeling of resentment against all wholesale makers, and by entering into a hopeless opposition, either by denouncing the work or attempting to meet the prices at which it can be furnished. A careful diagnosis of the case will, I think, disabuse the local or smaller makers of this erroneous idea, and prove that, in place of being competitors, the wholesale makers are sure forerunners of better

days for the trade,—so popularizing the use of light wheeled vehicles that the world is more and more going on wheels.

Let us briefly review the changed conditions of the past few years. Within the memory of quite young men in the trade, the owner of a buggy or carriage was the exception; only the rich man of the town could afford such state, and the well-to-do farmer who had more than his cart and farm-wagon, aspired only to a high, clumsy spring-wagon. In the recent past it was quite an event in the life of a young man who had been brought up in the country, when he could secure the use of a buggy and give his girl what was probably the first ride of the kind that had been offered in her quiet life. And this conservative use of light pleasure vehicles must have continued until this day, had not capital, invention and energy entered the field and placed these vehicles within the easy reach of persons of very moderate means, until, in towns where ten years ago not six buggies could be seen on the streets in a week, to-day they are counted by hundreds; and until small shops that then built ten or twenty jobs in a year now employ as many hands and fires on repair work alone, while continuing to make the custom work and special jobs for the community.

Moreover, in instances where the carriage-builder of a town, instead of antagonizing the trade work when it has been offered him, and driving the wholesale maker to seek his customers among men not in the trade, has promptly read the signs of the times and taken hold of it as belonging to him, and made it a part of his business, the invariable result has been that he has held his own with his custom work, and greatly increased his business and profits by likewise pushing the sale of cheap work among those who otherwise could never have bought a buggy of him or any one else.

Not long ago, an old and well-to-do carriage-maker, in a good town in this State, said to the writer: "What a mistake I made ten years ago! I then had the largest trade in this community, with plenty of work at good prices. The trade work was offered me, but I thought it beneath my notice. But men who never made or sold a carriage bought car-loads of it, and effected sales all around me. I continued to refuse to accept the situation until too late. They took my trade, and to-day my big shop is turned into a repairing shop—and is for sale. It is too late at my time of life to start again; but, in looking back, I feel that if I had taken a good line of trade work, pushed it, and kept to the front, I would have sold a large quantity at a fair profit; I would likewise have increased the demand for my own work, and I would have held the fort!"

You will see, by the above, that my views almost exactly coincide with the sound advice you have given the trade, as expressed in your communication; but, at the risk of being tedious and appearing as a special pleader in the interest of the wholesale trade, I desire to emphasize this fact, namely: I am fully persuaded, if the idea that the interests of the wholesale manufacturers and the smaller custom makers are antagonistic can only be got rid of, it will soon be proved that we can work together, with mutual interests and mutual profit.

The manufacturers of cheap work are educating the people to ride, and gradually creating a demand for better and better work, which it should be the endeavor of all makers to be ready to supply. The day will never come when the wholesale trade can supply the wants of the thousands who demand work possessing individuality and adaptation to the tastes and needs of the locality where it must be made. That is no more possible than that the ready-made clothing dealer should be able to displace the custom tailor. The wholesale clothier has his place. He can dress the masses far better than their fathers ever dressed, and for less money. But, at the same time, the custom tailor finds, by this very placing of good clothes on the backs of the millions, that an increased demand for his own nicer and more complete work is necessarily created. Is not the result logical? And does it not equally apply to the carriage trade? Allow me to close by exhorting the carriage trade throughout the country to no longer allow the itinerant trader, the general storekeeper, and the agricultural implement dealer to monopolize the trade in low-priced work, thus losing the twenty customers who will purchase a buggy costing under \$100, while saving the sole remaining customer who can afford to pay over that amount. The profits of both the low and high-priced work belong to the local manufacturer if he will claim it.

The above views are the result of observation covering the field of a trade extending from Maine to California, and I believe they will be found to be substantially correct. I shall be glad to answer any further questions that may be suggested by them. Yours truly,

G. H. BURROWS.

A RECENT advertisement reads as follows: "If the gentlemen who keeps the shoe store with a red head will return the umbrella of a young lady with whalebone ribs and an iron handle to the slate-roofed grocer's shop he will hear of something to his advantage, as the same is the gift of a deceased mother now no more with the name engraved on it." For practice, let the reader rearrange this sentence; and when he next sends a communication to his trade journal he will be less likely to fall into similar errors of construction.

OFFICIAL CIRCULAR FROM SCHOOL COMMITTEE.

SUBJECT: FREE-HAND DRAWING.

To the Carriage and Wagon-Makers of the United States, and their Employés :

This Committee, having charge of the Trade School in New-York City devoted to the instruction of carriage employés in free-hand and mechanical drawing, beg to offer the following suggestions, founded upon their experience of the past year in the Corresponding Classes.

The majority of the pupils of such classes evidently misunderstand the object and scope of the teachings undertaken in this department of the school work. They expect to be initiated into the mysteries of carriage drafting at the very start. This is unreasonable and impracticable. As a rule, the candidates for admission give evidence of having had no previous instruction of any kind in drawing. Not only are they wholly unacquainted with the rudiments of geometry and perspective, and utterly lacking in experience in free-hand drawing, but many of them do not know how to use a pencil or crayon, to say nothing of the compass-pen. Such young men are just the ones that the Corresponding Classes are particularly designed to assist; but to reap any benefit from the advanced lessons in carriage drafting, they must first become familiar with the use of drawing instruments, and with the rudiments of free-hand and mechanical drawing.

Free-hand drawing, this Committee believes, must be made the foundation of all instruction designed to develop the taste and originality of draftsmen, whether artistic or mechanical. Free-hand drawing best trains the eye to appreciate beauty of outline, to criticise defects, and to originate new and graceful forms and combinations. Free-hand drawing best teaches the pupil ease in the use of chalk, crayon or pencil. Free-hand drawing, and free-hand drawing only, may be relied upon to teach the mind and hand to work in unison. Free-hand drawing, therefore, has been made the subject of the introductory lessons prepared by the instructor, and every new scholar is expected to follow these lessons in due course, whether he has previously received instruction in this branch or not. If already familiar with such work, additional practice cannot but prove valuable to him, and it will also enable the instructor to become acquainted with the pupil's degree of proficiency and his individuality. In any case, it is absolutely necessary that every pupil should be a fair free-hand draftsman before he can expect to obtain any advantage from the study of mechanical drawing, where the trained eye and trained hand must still be depended upon.

The next course of lessons is devoted to the selection and use of such mechanical aids as have been found particularly helpful in the carriage draft-room. Then follow rudimentary lessons in carriage drafting on a small scale. The next series briefly explains the principles of plain and solid geometry, as preliminary to geometry applied to carriage drafting. Thus prepared, the pupil is then introduced to the so-called "French Rule" of carriage body-making, as taught in the celebrated school of Albert Dupont in Paris, which involves a study of all the leading geometrical problems in carriage drafting and construction. This is followed by lessons devoted to the principles of perspective, miscellaneous problems relating to the suspension of vehicles, and full and complete working drawings, wherein all the previous instructions are introduced and utilized.

It will be seen, by the foregoing outline of the established course of study, that the elaborate series of lesson-papers prepared by the instructor for the Corresponding Classes are intended, by easy and direct stages, to lead such pupils as are willing to follow them in due course and devote to them the necessary time and practice, from the first use of the crayon in free-hand drawing to the completed working draft,—wherefrom patterns may be made and a carriage can safely be constructed.

We notice, in a recent lecture by President Geo. N. Hooper, of the Institute of British Carriage Manufacturers, London, England, on "The Methods and Results of Technical Teachings" in that country, that he has embodied the same general views above expressed. He says :

"Many of the students come to the classes wanting to be taught to draw carriages, unwilling to pass beforehand through a good training in free-hand drawing. They have, therefore, to be set to copy drawings of carriages, and some attain fair skill as copyists. * * * * The teachers, however skillful and enthusiastic, could proceed with greater certainty and assurance if their students could at once, with tolerable certainty, accurately describe the lines that should be inserted in due order in any ordinary, and, still more, in any intricate carriage drawing. Progress would be more rapid, and a far higher character of drawing would result. Besides this, the students would be prepared in the future for more original and independent work."

Mr. Beresford Hope, in his recent address as President of the Art Section of the Social Science Congress, given at Birmingham, England, further emphasizes the same views. He says :

"Free-hand is the very basis, the essential alphabet, and the only true foundation of the universal language of drawing, of which geometry is the syntax, without which intelligible words are impossible; and it is

absolutely necessary to master the two before being competent to approach the high quality of artistic perception of fitness to an end, and the still higher quality of art truth."

We heartily endorse the expressions of the gentlemen above quoted, and earnestly invite to them the attention of the trades we represent.

A few words now to employers. Much money and time have been devoted by the Carriage Builders' National Association to the establishment and maintenance of a school specially devoted to the instruction of carriage employés. For four years past the Trade School has been in successful operation, and it has already accomplished much good, as is clearly proved by the progress shown by many of the pupils, and the positions of increased responsibility they now occupy in the factories where they are employed. Last year the scope of the School work was materially increased by establishing Corresponding Classes, which now offer facilities for instruction to employés of carriage and wagon-makers throughout the country, in their homes, and at merely nominal fees (namely: \$1 a year for the apprentice and \$2 for the journeyman), barely covering the cost of postage. Under this arrangement, carriage workmen in America now possess opportunities for regular and practical instruction far surpassing those of any other country, and they have none but themselves to blame if they do not utilize them.

The employers, also, owe it to themselves as well as to their employés that they promptly take advantage of the same opportunities, by organizing local classes to coöperate with the parent School, or, when this cannot be done, by encouraging their workmen individually to become corresponding members of the School. Every move that benefits employés benefits the employer as well, and the latter can often well afford to pay the small initiation fee on account of an ambitious apprentice or helpful foreman, that he may receive the stimulus necessarily imparted by regular communication with the experienced city workmen employed as instructors in the parent school.

For your own benefit, please give careful consideration to the above suggestions.

This Committee further request your assistance in communicating the facts contained in this circular to all your employés, accompanied by a recommendation from you that they immediately join the Corresponding Classes. Further copies of this circular, for distribution, will be supplied on application to the Secretary; and a little earnest effort on your part, by urging employés to join the School, forwarding their remittances, and then encouraging them to persevere in the study of the fortnightly lesson-papers, is the form of assistance most needed by your Committee, who are trying to do their part in this public duty, and who only ask that you will try and do yours. Very respectfully yours,

Executive Committee: Committee of the Carriage Builders' National Association on Technical Education:

JNO. W. BRITTON, <i>Chairman.</i>
WILDER H. PRAY, <i>Treasurer.</i>
WM. N. FITZ-GERALD.
G. W. W. HOUGHTON, <i>Secretary.</i>

214 E. 34th-street, NEW-YORK, Dec. 10, 1884.

ONSARTAINNESS OF SLEIGHING IN D. C.

LAST year's snow-fall in Washington recalled to the mind of a *Pittsburgh Dispatch* writer the experience of the Hon. Hamilton Fish, who, when Secretary of State, had a fine sleigh sent down there from New-York. The day it arrived, there were ten inches of snow on the streets of Washington, and the stable-men worked half the night to get the sleigh ready for use next day. Before daylight the weather grew warmer, and by 10 in the morning all the snow was gone, and no more fell that winter. "Oh, well," said Mrs. Fish, "we'll use the sleigh next winter." But there was no snow next winter; and the handsome sleigh was finally sent back to New-York without ever having been used.

"WHO OWNS THIS COACH?"

A hammercloth coach is seen standing in front of a London carriage wareroom, with Jeames on the box. A policeman approaches, and addresses Jeames familiarly :

"Well, Powder Wig, who sports this ark-on-wheels?"

JEAMES (stiffly): "Col. Snood; and who's a better right?"

BOBBY: "Ah! I thought by your distinguished appearance that you were the proprietor."

JEAMES (confidentially): "Well, fact is, the Colonel hasn't settled for it, so the coach-maker has a pull on it; but as I own the coach-maker, I suppose we might call it that I own the coach too."

THE venerable M. Chevreul, of France, whose celebrated work on Color ought to be familiar to every carriage painter, still lectures on chemistry at the Paris Museum of Natural History. He is 98 years old; and the other day he told his class that he could not possibly account for it, but he really was beginning to lose his memory for names.

OFFICIAL CIRCULAR.

INTRODUCTORY ANNOUNCEMENT BY COMMITTEE ON STATISTICS.

To the Carriage-makers of the United States:

At the annual convention of the Carriage Builders' National Association held in St. Louis in October last, the undersigned were appointed as a committee to gather facts and figures, as well as general information, on the subject of the past, present and prospective production of carriages and carriage goods in the United States, with a view to presenting reliable statistics, by which the trades may be guided in their future production.

To this end the committee earnestly request all manufacturers of carriages and carriage goods in the United States, whether members of the Association or not, to prepare individual reports based upon the inquiries noted in the blank form which will be distributed to the trade at an early day, and forward the same to some member of the committee.

Such individual reports will afterwards be consolidated in the form of statistical reports, which will be presented to the Association and afterward mailed to every carriage-maker who contributes a report. The original reports sent to the committee will be held in strict confidence and be seen by the committee alone.

We believe that if the trade generally will respond to the circulars, that the forthcoming consolidated report may be made of much interest and practical value to all carriage manufacturers. The committee will endeavor to do their part of the work with discretion, and they invite the prompt coöperation of all members of the trades alluded to.

Committee of the Carriage Builders' National Association on Trade Statistics:

F. D. SUYDAM, Chairman, Toledo, O.
JNO. W. BRITTON, New-York City.
GEO. M. PETERS, Columbus, O.
GEO. A. HALSEY, Newark, N. J.
ADDISON BYBEE, Indianapolis, Ind.

APPRENTICESHIP APPLIED TO THE CARRIAGE PAINT-SHOP.

Hassard-st., NEW BRUNSWICK, N. J.

EDITOR OF THE HUB—DEAR SIR: I here inclose a manuscript on the subject of apprenticeship as applied to the carriage paint-shop. If you can use it, you are welcome to it. I think the question is a vital one to all concerned, and this expression of my views may help to stimulate others who are more capable than I am, to express theirs as well.

I am, sir, yours respectfully,

A. P. DAIRE.

NOTE.—We take special pleasure in inviting the attention of every reader of *The Hub* to the article above referred to, which will be found reproduced in full in the "Paint-Shop Department" of this number.

The subject is unquestionably one of great importance to the present generation of carriage-makers, and still more so to the coming generation. Something will have to be done, and that quickly, if the trade would secure the needful number of experienced and skillful coach-painters, for the number rapidly lessens, while the demand as rapidly increases. We are already threatened by a serious break in the standard of American work in this branch of carriage-building, unless some suitable means of educating our young men to the practice of the trade be promptly discovered and utilized.

Mr. Daire's suggestions offer certain means of relief which seem to us practicable and well worthy of trial. His reputation as an experienced painter and intelligent thinker, and his clear mode of expressing his views as such, entitle him at least to the hearing which he now requests. If his views are incorrect or inadequate, or if any one else thinks he has better ways and means to suggest, by all means write and tell us so! Further correspondence on this subject is earnestly invited.

At the same time, please remember that letters alone are not going to cure the trouble here spoken of. Prompt and vigorous action upon the part of carriage manufacturers and their foreman painters is also required. If you approve of Mr. Daire's suggestions, or any one of them, let action follow conviction. Correspondence telling us of what has been done will be considered by us as far more valuable than that telling of what is thought. Thought and action, however, are both necessary in the present emergency, and we shall consequently be pleased to hear from all.

ACCORDING TO CONTRACT.

By an agreement between a Vineland, N. J., manufacturer and an expressman, the latter was to cart all the former's packages, and was to receive three cents a package. Some time ago the manufacturer received a new three-ton steam boiler, for which he refused to pay more than three cents, as called for by the contract. The expressman complained, but eventually submitted. Since then a load of bricks came for the manufacturer, which the expressman delivered, and demanded three cents apiece, his bill amounting to about \$15.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING NOVEMBER, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office during the month of November, 1884:

NOVEMBER 4th, 1884.

Carriage Axle-box	F. L. Snow.....	West Swanzey, N. H.
Tubular Wagon Axle....	N. L. Holmes.....	Racine, Wis.
Wagon Axle.....	"	"
Buggy Spring.....	C. J. Miller.....	Mount Kisco, N. Y.
Carriage Spring.....	J. McCormick.....	Potsdam.
Carriage Umbrella Attachment.	C. H. Butlin, Camborne,	County of Cornwall, England.
Wagon End-gate.....	I. Eaton.....	New Sharon, Ia.
"	G. and H. H. Thomas..	Waterloo, N. Y.
Sand-belt Attachm't for Spoke	E. Case.....	Owensborough, Ky.
Lathes	"	"
Sulky.....	M. Payne.....	Troy, N. Y.
Vehicle.....	T. Hill.....	Jersey City, N. J.
Vehicle Running-gear.....	E. Whitmore.....	San Francisco, Cal.
Vehicle Spring Coupling.....	C. R. & J. C. Wilson....	Detroit, Mich.
Two-wheeled Vehicle.....	B. Burr.....	Chicago, Ill.
Wagon Brake.....	L. L. James.....	Medora, Ind.
Automatic Wagon Brake.....	F. W. Moldenhauer....	Ashippun, Wis.

NOVEMBER 11th, 1884.

Carriage-top Bow.	I. M. Ritter, ¹	Cleveland, O.
End-gate	H. W. Moore.....	Olean, N. Y.
Fifth-wheel.....	G. H. Young.....	Davenport, Ia.
"	J. T. Dougine.....	Chicago, Ill.
Vehicle Hub.....	T. S. Miller....	The Grove, Texas.
Sleigh	J. Kinney.....	Cumberland, Wis.
Thill-coupling	F. A. Wittich.....	Ashtabula, O.
Hook and Ladder Truck.....	E. F. Steek.....	Chicago, Ill.
Vehicle Spring.....	S. G. Smith.....	Hannibal, Mo.
Two-wheeled Vehicle.....	A. Hofman.....	Indianapolis, Ind.
Device for Removing Wagon	W. H. Lowe.....	Hutsonville, Ill.
Bodies	"	"
Wagon Brake.....	W. Bentlim.....	Flushing, N. Y.
Wagon-top.....	C. R. Parks.....	Arkadelphia, Ark.
Whiffletree-clip	R. S. Clark.....	Helena, Mont.
"	"	"

NOVEMBER 18th, 1884.

Axle-box	J. White.....	Denton, Md.
Thill-clamp	H. K. Forbes.....	Columbus, O.
Tongue Support.....	J. W. Schwarzel.....	Topeka, Kan.
Vehicle Seat.....	J. Walton.....	Olive, N. Y.
Vehicle Seat Lock.....	A. E. Steel, ²	Lake City, Minn.
Two-wheeled Vehicle.....	L. S. Clark, ³	Doylestown, O.
"	J. Howell.....	Jackson, Mich.
Vehicle Wheel.....	C. E. Tower, ⁴	South Bend, Ind.

NOVEMBER 25th, 1884.

Vehicle Axle.....	J. O. Therien.....	Minneapolis, Minn.
Child's Carriage.....	G. R. Clark.....	Dubuque, Ia.
Hand Truck.....	W. W. Hughes.....	Urbana, O.
Dumping Wagon.....	R. D. Shackelford.....	Pettis Co., Mo.
Spring Whiffletree.....	C. B. Morse.....	New-York City.

¹Administratrix of A. C. H. Ritter, deceased, assignor to Emma A. Raymond, Grand Rapids, Mich.

²Assignor of one-eighth to A. C. Weaver, same place.

³" of three-quarters to O. G. Franks and G. T. Baughman, both of same place, and J. H. Warren, of Lodi, O.

⁴" to the Economist Plow Co., same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.

THE NECESSITY OF FORBEARANCE.

THE universal condition of human nature, as God appointed it and as providence develops, is to make men in this life relatively imperfect, and imperfection is full of faults.

Therefore, if you are going to have a partner, if you are going to have a mate, if you are going to have a friend—do not attempt to judge them first and continuously by the highest rules of ideal perfection. Nobody can stand up under it, and all your discoveries will be of displeasure. But begin with the thought that everybody is selfish—some more, some less,—everybody is proud, everybody has an element of envy in him, everybody may be jealous, everybody will have hours of weakness, everybody also will have hours of irascibility and of temper. I take my friend and my mate with the perfect consciousness that I have got to bear, not alone with the things that are good in them, but with the things that are not so good. True friendship is one that says, "I love them to that degree that I would rather have them with all their faults, than anybody else with all their virtues." Then you have something like an anchor to hold by in times of storm and trouble.—Mr. BEECHER in *Plymouth Pulpit*.



TWO DATES WANTED.

ST. LOUIS, MO., Nov. 24th, 1884.

EDITOR OF THE HUB—DEAR SIR: Please inform me when the patent of the original Sarven patent wheel was granted, and when put in actual use. Please answer by return mail. Inclosed find stamp for same. By doing this you will greatly oblige one of your subscribers.

ANSWER.—We are indebted to the Royer Wheel Co., of Cincinnati, for the substance of the following response to our correspondent's inquiries.

The J. D. Sarven patent was granted June 9, 1857; extended seven years from June 9, 1871, and expired June 9, 1878.

Mr. Sarven had a very hard time introducing his wheel. It was so different from all previous models that no one would take hold of it at first; but, by persistent efforts, a few were introduced before 1861. The war then came on, and nothing more was done until after 1865; and, as a matter of fact, the wheel did not come into general use until 1868; but from that date forward the wheel sold itself on its great merit, and the patentee realized a good financial return for his valuable invention.

ORNAMENTATION AS APPLIED TO STREET-CARS.

A CORRESPONDENT of our high-toned contemporary, *The Hub*, makes a spirited attack in the December issue of that journal, on an article entitled "Ornamentation as Applied to Street-Cars," which appeared in the July issue of the *Blacksmith and Wheelwright*.

We shall not, in this connection, attempt to reply to the criticism of *The Hub's* correspondent on the subject matter of the article. What we now have to do is with the concluding paragraph in this rather acrimonious communication. * * * [See November *Hub*, page 558.]

For the information of *The Hub's* correspondent, we desire to say that the article in question, as a matter of fact, was neither written by a blacksmith nor wheelwright, but by a gentleman who was formerly editor of the Paint Department of *The Hub*, and who, at that time, was considered by our neighbor a high authority in all matters of painting. Exactly why, after contributing to the columns of that journal for a long series of years, the information he is now able to furnish is regarded as valueless, we are unable to say. Perhaps our esteemed contemporary will kindly explain.—December issue of *Blacksmith and Wheelwright*.

ANSWER.—We gladly rise to explain, and the explanation is very simple. Our correspondent, who signed his name in full, felt called upon to criticize the anonymous article referred to because he considered it incorrect in many of its statements; and, in our opinion, he clearly proved the charge in his detailed response, as published on page 558 of the November *Hub*, to which the reader is referred for full particulars.

The writer of the objectionable article was anonymous, and unknown to our correspondent, and the question of personalities certainly did not, and could not, enter into the consideration of the subject. His closing remark to the effect that the author must have been a blacksmith or wheelwright, rather than a practical painter, might certainly have been omitted without injuring the strength of his case; but it would seem quite offensive, inasmuch as the best of blacksmiths and the most gifted of wheel-makers might chance to turn out a very poor job of literary work on the subject of painting without compromising his reputation in his own branch of the trade,—and this was what our correspondent no doubt suspected to be the case.

In this instance, as in all similar ones, we decline to introduce personalities into the discussion. Our correspondent has criticized no individual, but a written anonymous article dealing with a practical topic on which he is well posted. He calls attention to certain statements in the article which he considers erroneous, and tells why. So far, so good! If, now, the *Blacksmith and Wheelwright* deems such criticisms sufficiently supported and unjust, and desires to maintain the views already stated in its columns, or to explain their apparent inconsistencies, let it proceed to do so. We have no curiosity to know who wrote the article. Its correctness or incorrectness is all that interests us.

BRONSON HOWARD, the dramatist, who is living on royalties from his plays, in England, is the possessor of a double tricycle on which he and his wife, and whatever supplies they feel like carrying, make twenty-mile or thirty mile trips about the country.

AN APPEAL TO AUTHORITY.

EDITOR OF THE HUB—DEAR SIR: It is a question whether or not some of the older members of the Association may have experienced a feeling of homesickness at the St. Louis convention,—whether they may not have missed some of the old customs, and former shining lights, and felt themselves in the midst of a sort of new dispensation; and, being of a conservative turn of mind, they may have questioned with themselves whether this new dispensation were a sign of advancement or decline of the glory of the institution.

Accident, distance, or a combination of circumstances may have prevented the presence of many familiar and earnest faces. 'Twas certainly a peculiar combination of circumstances which caused, for the first time in a number of years, the omission of a report by a "Committee on the Award of Prizes." However little the omission of this report may have contributed toward the feeling of homesickness above mentioned, it is certain that, by it, a few ambitious young men in the trade had cause to lose whatever interest they may have had in the Association; and (what, perhaps, is of as little consequence to the C. B. N. A.) were led to believe, as well, that the Association has lost its interest in them.

This condition may be very proper and desirable; but the Association, or its Executive Committee, have apparently not thought so in years previous. Quite on the contrary, their comprehensive and liberal prize offers of a few years back have been all that young ambition could desire for encouragement. What could be more honor to an aspiring draftsman than a well-earned gold medal at the pleasure of his superiors in the trade! What could be a better, yet more modest, advertisement of his talents? Yet in the face of all this, the chief cause of the withdrawal of the prize offers was the evident decline of their popularity among the young men of the trade. Indeed, this seemed particularly true the last year of gold and silver medals. Most of the principal awards of that year went to old competitors, and deservedly, while the work of the others seemed, perhaps, to show little talent worthy of being further stimulated.

It may not have occurred to many that there was a possibility of a dearth of natural talent just at that period; and that most of the old prize winners had been sufficiently bemedaled in their own estimation, and thought it time they had stepped out to give the younger ones a chance. Unfortunately, for themselves, the younger ones did not show up in startling numbers, if, indeed, there were any outside of New-York and the Technical School; and, in consequence, they have since been waiting for another opportunity.

The change from gold and silver medals to lucre and bronze did not prove a happy one, so far as remedying these evils is concerned; and what wonder? Could any sum offered that year as a prize begin to pay for the amount of labor involved in a drawing worthy of a gold medal of the previous year? And, after the money was disposed of, what had a successful competitor to show for his pains? A bronze medal! Moreover, the classification was not at all attractive.

It is, of course, understood that the money scheme was only intended as an experiment, and that much credit is due to the originators for an idea combining as far as practicable pecuniary inducement and honor. But it was thus left to the liberal, wide-awake *Hub* to finally awaken, with characteristic success, the newly interested ambition of aspiring draftsmen and mechanics, and to prove that, although much of the natural talent in the trade had temporarily retired from the field of competition, there is still some uncultivated talent which thus manifests its readiness to be encouraged. The honorable Executive Committee have it in their power to do the rest.

Very respectfully yours,

T. SQUARE.

HOME-MADE "RESERVOIR" PEN.

A PEN that will obviate frequent applications to the ink-stand can be made as follows: Two ordinary pens of the same pattern are inserted in one holder. The inner pen will perform the operation of writing, while between it and the outer one a supply of ink will be reserved sufficient to write several pages.

PAINTERS' CREAM.

PAINTERS' cream is a preparation used by painters to cover up work they are obliged to leave unfinished for a length of time. They cover with it the parts already painted, and it preserves the colors and can easily be removed when the work is again taken up. It may be made as follows: Take half an ounce of the best mastic, finely powdered, and dissolve over a gentle fire in three ounces of very clear nut oil. Pour the mixture into a marble mortar, with two drachms of pounded sugar-of-lead at the bottom of it. Stir this with a wooden pestle, and keep adding water in small quantities till the whole appears like cream and refuses to admit more water so as to mix freely.—*The Painter*.

DINNER-HOUR.

"POETS' CORNER."

WINGED WHEELS.

[THE following extract, which should appeal to every one interested in vehicles, is taken from a long poem entitled "The Sibyl's Abode," which appeared in a recent issue of *Noah's Sunday Times*, New-York.]

We are ready to start—and would go in a cart
(With gentle-eyed oxen hitched on to the tongue,
Or mules, if not kickers, or jennies, if young),
Or go in a shay, or go on a dray,
Or go, on the snow, in a cutter or sleigh,
Or jumper or sled, or "Krook"-runnered pung,
Or go in a buggy, with "Polly" so snug,
(Who lives at Centralia,) with feet in a rug;
Or go in the cars, with the speed of the wind,
With Danger and Death left, wisely, behind,
(Unless a high bridge should chance to go down,
And we, and the others, go under and drown,
And no one be left in the bounds of our town
To visit the Sibyl, and drink of her beer
That "Krook" failed to sip on his visit last year).
We are waiting to go, and see! now the snow
Is falling, to cover the Illinois mud;
So away in a sleigh we'll presently scud,
With the bells all a-jingle and steeds in a caper,
O'er the snow, white and pure as a sheet of new paper.
Perhaps the fair Sibyl will recognize me
As one who aspires to a higher degree
In the Art Mystique, if thus we may speak,
And are willing to pay, in advance, a good fee,
And something for beer, and other nice drinks
That are dear to the heart of a Sibyl or Sphinx.
We're determined to go—if we go on our *toe*,
Or go in a vehicle, rapid or slow—
In a rockaway, vinaigrette, wagonet, wain,
Cab, clarence, vettura, cariole, caravan,
A fly, victoria, chaise, vis-à-vis,
Volante, carryall, tumbril, coupé,
Pilentum, road-sulky, manumotor or crate
(A name for the hurdle, we might as well state),
Chair, minibus, tom-john, dog-cart, or sedan,
Rough wagon, coach, dearborn, an ambulance van,
Or buck-board (so springy—unless on its edge),
A pulkha, train, biga, pung, jumper, a sledge,
A voiture, nice cutter, ginny-carriage, or drag,
A gladstone, or galloper (*not* a race nag),
A jaunting-car, omnibus, hansom, landau,
Caroche, drosky, dennet, gig (rapid to go),
A hurdle, or noddy, wheel-barrow, tim-whisky
(Or whisky alone, if a fellow feels frisky),
A sulky, p'rambulator, a truck, palanquin,
A stanhope, a tartan, a phaeton (trimmed green),
A tilbury, britzska (where one can recline
On the lap of his "Polly," as I upon mine),
Break, buggy (as often I break down in mine),
Barouche, cabriolet, a brett, or calash, or
Caleche (if you like—with high seat and dasher),
A brougham (*Pro.* broom, by folks far away),
A berlin (berline, as a Monsieur would say),
A booby-hutch, (—hut, if you'd slide *a la* sleigh),
A hack,—“nary” bier—(though of beer we partake,
Like "Krook" and the Sibyl, for stomach's ache's sake).
Or whatever else Noah Webster lays down,
As an aid to a fellow to get out of town
On the hunt of a Sibyl—as now is our case—
To study the Mystery shrined in her face,
And learn from her lips how to sip and to pun,
When one has *excursed* for a season of fun.

PHAETON.

Before Copernicus and others proved
The sun stood still, and 't was the earth that moved,
Phoebus Apollo, as all freshmen know,
Was the sun's coachman. This was long ago.
Across the sky from East to West all day
He drove, but took no passengers or pay.
A splendid team it was; and there was none
But he could drive this chariot of the sun.
The world was safe so long as in his hand
He held the reins and kept supreme command.

But Phoebus had a wild, conceited son,
A rash and lively youth, named Phaeton,
Who used to watch his father mount his car
And whirl through space like a great shooting-star;
And thought what fun 't would be, could he contrive
Some day to mount that car and take a drive!

The mischief of it was, Apollo loved
The boy so well that once his heart was moved
To promise him whatever he might ask.
He never thought how hard would be the task
To keep his word. So, one day, Phaeton
Said to his sire, "I'd like to drive your sun—
That is, myself—dear sir, excuse the pun—
Twelve hours through space. You know you promised once
Whatever I might ask."

"I was a dunce,"
Apollo said. "My foolish love for you,
I fear, my son, that I shall sadly rue.
Lend you my chariot? No;—I really can't.
Is n't there something else that I can grant
Instead of this? A serious thing 't would be
To have my horses run away, you see.

You might bring ruin on the earth and sky,
And I'm responsible, you know,—yes, I.
Try something else. Here's a great wheel of light,
The moon—a bicycle—almost as bright
As my sun-chariot. Get astride of this,
And move your legs, and you'll enjoy a bliss
Of motion through the clouds almost as great
As if you rode like me in royal state.
No, my dear boy!—why, can't you understand?
I dare not trust you with my four-in-hand."

"I have no taste for bicycles," the boy
Replied. "That thing is but an idle toy.
My genius is for horses, and I long
To try my hand at yours. They're not so strong
But I can hold them. I know all their tricks.
Father, you swore it by the river Styx,—
You know you did—and you are in a fix.
You can't retract. Besides, you needn't fear!
You'll see I am a skillful charioteer.
I've taken lessons of a man of worth,—
A first-rate driver down there on the earth."
"I see," said Phoebus, "that I can't go back
Upon my promise. Well, then, clear the track!"

So Phaeton leaped up and grasped the reins.
His anxious father took a deal of pains
To teach him how to hold them,—how to keep
The broad highway,—how dangerous and steep
It was; and how to avoid the moon and stars,
Keep clear of Jupiter, the earth and Mars—
And dodge the asteroids and comets red;
Follow the zodiac turnpike, straight ahead,
Though clouds and thunder-storms should round him spread.

Alas! 't was all in vain. A little while—
Two hours perhaps—his fortune seemed to smile;
When a huge meteor, whizzing through the sky,
Alarmed the horses, who began to shy,
And shake their fiery manes; then plunged and reared,
And whirled him zigzag downwards, till they neared
The earth. A conflagration spread below,
And everything seemed burning up like tow
In the sun's flames. Then Jupiter looked down
And saw the earth like toast, all turning brown,
And threw a blazing thunder-bolt (but wait—
Here in parenthesis I'd like to state
This may have been a telegram; for then
Lightning despatches were not known to men,
But only used by heathen gods), which struck
The youth; and by the greatest piece of luck
Prevented further loss.

This tale they told
In olden times. If I might be so bold
As to suggest an explanation here
Of a phenomenon by no means clear,
I'd say those spots upon the sun's red face
Were bruises that he got in that mad race.

—C. P. CRANCH, in *St. Nicholas*.

ANOTHER SWEET SINGER OF MICHIGAN.

THE Austin, Tomlinson & Webster Mfg. Co., of Jackson, have called forth a second "Sweet Singer of Michigan," Mr. J. S. Andrews, who has "affectionately inscribed the following lyric to the authors of that living poem, the Jackson Wagon."

Last night, while waiting for a train, asleep, on a hard settee,
A vision, born of a weary brain, came smiling unto me!

Methought I mounted up through space, to the clouds where Fortune dwells,
And casts o'er earth and dwellers there her good and evil spells!

I gazed with awe on her stern face, life's mystery to solve;
And watched, with breathless interest, her flying wheels revolve.

Two wheels has she—I always thought the lady owned but one!
My thought was false, as you'll agree before my tale is done.

For two I saw; one at each hand spins 'round by night and day;
And from each wheel, at ev'ry turn, an angel flies away!

An angel each, but differing far, for one with features mild,
And eyes so blue, and hair so fair, is surely heaven's child.

The other—robes of somber black, a face malign and fell,
And glittering eyes and raven hair, pronounce a child of hell.

Both fly to earth with burdens great, each differing sadly still;
The one bears all good gifts to man—the other every ill.

Methought my duty to my race demanded mighty risks;
So, crouched behind the goddess's chair, I scanned the flying disks.

The left—whence flew the devil's child—on a broken axle creaked!
And looked as tho' each curse it bore, on itself had first been wracked!

With broken fellow, rattling tire, and spokes like crumbling bones;
With hub deep-checked, bereft of bands, it uttered shrieks and groans!

The paint that once had graced its parts, was now growing dim with years;
It takes good lead to stand the storms of Misery's scalding tears.

The right—Oh! what a difference—on a truss-rod axle flew;
And tho' in use long centuries, it seemed entirely new!

The tire was tight, the paint was bright, and 'tis warm up there, my friends!
The fellows sound, spokes tough and straight, the hub with all its bands!

So noiselessly did it revolve, I scarce could hear a sound!
And lost in wonder, love, and praise, I watched it fly around!

* * * * *

I wonder now, and I wondered then, at the wonder I did feel;
For the wheel from which all blessings come is a Jackson Wagon wheel.



TRADE NEWS.

NEW-YORK CITY.

FIRST RESULT.—The recent combination of carriage hardware manufacturers has begun to blossom and bring forth fruit. Shaft-couplings have been advanced from \$3.00 to \$4.18. Next!

INTERESTING FACT FOR ADVERTISERS.—*The Hub's* representative recently met Mr. Jared Maris, of the *Carriage Monthly*, in Boston. He had just returned from a trip to Canada. He said he was surprised to find that *The Hub* was in about every shop he visited. Mr. Maris sells wheels when he is not engaged in writing editorials.

TURTON'S STEEL.—Everybody is agreed regarding the merits of Turton's steel; but once in a while some one thinks it necessary to repeat what as before well known, and the Rice Spring Co. have written to Mr. Arthur Turton, agent for the United States, that "it is the only brand we have found sufficiently uniform in quality and temper to make our springs."

TESTIMONIALS.—We have seen the copy of two testimonial letters sent to Messrs. Hildreth, Templeton & Co., varnish-makers, New-York, namely: one from Mr. J. B. Eggleston, carriage painter, of 38 years' experience, and the other from John Hughes, a carriage-builder. Both speak highly of the varnishes sent them by this firm, and Mr. Eggleston's letter is especially commendatory.

PERSONAL.—Mr. Charles W. White, representing Messrs. Burdette, Burdidge, Cyriax & Farries, wholesale and export druggists, Coleman-st., London, and Messrs. Wm. Harland & Son, varnish manufacturers, Merton, Surrey, England, arrived last month in this city, en route to Cuba and Central America. This gentleman has traveled through nearly every country in the world on behalf of the firms he represents, and we heartily wish him every success on his present journey.

"WHEEL SONGS," a collection of poems on bicycling, by S. Monahan Foster, published by White, Stokes & Allen, of this city, has already been mentioned by us as in preparation; and the completed work has since been received by us. The poems—many of which have already appeared in *The Wheelman*, and one or more in *The Hub*—are graceful in style, and they are charmingly illustrated and printed in this acceptable holiday present, which is as handsome as it is unique. The price is \$1.75.

PERSONAL.—Mr. Thomas Lakeman, of Sydney, New South Wales, one of the representatives in Australia and New Zealand for Messrs. Burdette, Burdidge, Cyriax & Farries, wholesale and export druggists, Coleman-st., London, Messrs. Wm. Harland & Son, varnish manufacturers, Merton, Surrey, England, and Messrs. Parke Davis & Co., manufacturing chemists, Detroit and New-York, arrived last month in this city, en route home via San Francisco. Mr. Lakeman's stay in this country will be of short duration, as he is desirous of returning to the colonies in time for the ensuing spring trade.

THE NEW-YORK CARRIAGE MARKET is reported as follows by *Wheeler, Harness and Saddlery* of Dec. 20th: "Sales of carriages during the past week were light in all branches, and few orders were placed. A moderate trade is done in fine sleighs, and quite a large one in the cheaper kinds. The stock of sleighs is large, and the variety in excess of that of previous years. A noticeable feature is the obvious change. The old Albany has given way to the more modern but not very comfortable vehicles. The painting is plainer, and carved work is on the increase. The Portland is the fashionable road sleigh, the Canadian, Russian and other patterns being the thing for other purposes. Prices range from \$20 to \$250, and other styles from \$50 to \$1,200. Dealers in carriage materials report trade slow, the noticeable feature being the settling up of accounts, which, notwithstanding the general dullness of trade, are more satisfactory than they were one year ago."

350,000 HANDS OUT OF WORK.—The investigation into the extent of the existing industrial depression, together with the statistics of employes in strictly manufacturing industries who have been displaced thereby, presented in *Bradstreet's* of Dec. 20th, is probably the most exhaustive of its kind, and well deserves careful study. The detailed reports, as printed, have been condensed from more than 4,000 separate replies, received from a staff of trained correspondents, and the results, summed up in an introductory chapter, point out that (so far as reported) 316,000 fewer employes are at work in manufacturing establishments in twenty-one States—containing 90 per cent. of the manufacturing employes—than have been hitherto required; while it is fair to assume that a more detailed inquiry would reveal nearer 350,000 as the total—part due, of course, to customary stoppages at this season. The enforced idleness among lumbermen in the Northwest and North is characterized, but not included in the totals presented, nor are the reductions among clerks and other employes in mercantile houses in the larger cities.

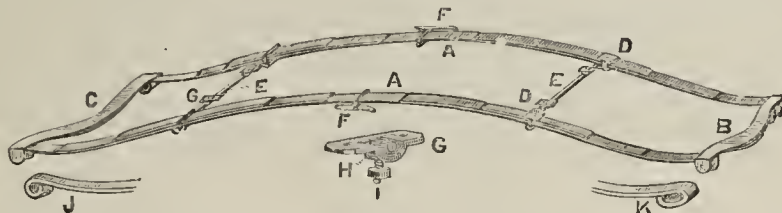
TRADE EMBARRASMENTS.—*Bradstreet's*, during the past thirty years, has reported the following embarrassments on the part of members of the carriage and accessory trades: W. J. Hellar, carriages, Columbus, Ind., assigned. Mack & Miller, wholesale saddlers, Evansville, Ind., failed. Liabilities about \$40,000; assets \$32,227. J. M. Forsythe, carriage-maker, Salem, Oregon, assigned. Joseph Clouse, carriages, Marion, Ind., assigned. Woodworth & Hutchins, carriage manufacturers, Middlebury, Ind., called meeting of creditors. F. J. Felt, carriage painter, Lewiston, Me., in insolvency. Liabilities \$1,000; no assets. A. H. Daily, carriage manufacturer, Omaha, Neb., attached. F. P. Bates, manufacturer of fifth-wheels, Syracuse, N. Y., assigned; references, \$7,000. W. B. Meals, carriage painter, Altoona, Pa.; closed by sheriff. Strauch & Natter, wagon-makers, Philadelphia, Pa., closed by sheriff. Sale postponed by stay of execution. Alexander J. McMullin, carriage-maker, Sydney, N. S., assigned to T. W. Publicover. William Snyder, carriage-maker, Omaha, Neb., assigned. John C. Ayers, spoke manufacturer, West Bloomfield, N. Y., assigned to Henry C. Brown. George Stotts, wagon-maker, Watford, Ont., assigned.

NEW-YORK STATE.

DISSOLUTION OF CO-PARTNERSHIP.—The co-partnership formerly existing between Messrs. Orville H. Short and William H. Smith, of Syracuse, N. Y., under the firm name of Short & Smith, was dissolved by mutual consent on Nov. 28th. Mr. Short will now receive and collect debts due the firm, and he has assumed all liabilities.

THE OSGOOD WOOD-FILLER FRAUD has again turned up. The latest bulletin has been furnished by Mr. R. W. Stone, of Bouckville, Madison Co., N. Y. In a letter addressed to us under date of Dec. 6th, he says: "The inclosed slip was clipped from the *Rome Daily Sentinel* of Dec. 4th, and shows that the swindler has been operating in Oneida County recently." The clipping reads as follows: "John Hughes, a painter of Trenton village, was recently visited by a couple of strangers, one of whom claimed to be an agent of the Osgood Wood Finish and Paint Filler Company, of Cincinnati. He desired to sell Mr. Hughes a recipe for making the filler. He exhibited testimonials from leading carriage manufacturers with whom Mr. Hughes was acquainted. Mr. Hughes therefore purchased the filler, signing a bond for \$1,000 as a guarantee that he would never divulge the method of its preparation. Mr. Hughes has since learned that the names were forged, and fears his bond will appear in the form of a note." Our correspondent adds: "If he ever calls on me, I will give you the result of the interview. I think it will be decidedly rich. I have read *The Hub* too closely to be deceived by him."

CHAMPION SIDE-SPRINGS.—Many of our readers doubtless noticed the announcement of the Champion Gear Co., of Lockport, N. Y., which appeared on page 507 of our October issue; and, as a matter of interest to the carriage trade, we have gathered the following additional facts concerning these gears and springs. The company manufactures a full line of these goods and is prepared to furnish gears either with or without bodies, or springs only, suitable for any kind of a job. Their springs and gears are already widely introduced in a number of States, and, as they seem to give universal satisfaction, the company look for largely increased sales and territory the coming season.



Referring to the above cut, it will be seen that the side-springs are but one leaf in the center, the same as at the ends; and as the body rests on cross-bars about eleven or twelve inches from the ends of the springs, they must, when carrying a load, spring in the center the same as at the ends. It is claimed that the long side-springs, connected at their ends with the half-elliptic end-springs, make them the easiest-riding in the market, as they have no sudden, short, jerking motion in passing over obstacles, and no surging motion in running over uneven ground. The following is an explanation of the letters in the cut: A shows the long side-springs; B and C, the front and back springs; D, the spring steps; E, the cross-bars upon which the body rests; F, the rub-irons; G, an attachment with knuckle-joint for bolting the body on; H, the rawhide to prevent rattling in the joint; I, the bolt; J, the hind end of the side-spring, and K the front end. The latter has an oblong slot to provide for expansion of the spring. The company are very sanguine that they have the best spring in the market for general use, and especially for physicians and others who spend a large portion of their time on the road; and their constantly increasing trade is good evidence of the justice of their claims. We think it will pay any builder to investigate the merits of the "Champion," and any inquiries directed to the company, as above, will receive prompt attention.

NEW-ENGLAND.

SLEIGHS.—Mr. S. R. Bailey, of Amesbury, Mass., has had an excellent trade in sleighs this season.

CLEARED THE DECKS.—Henry Hooker & Co., of New-Haven, sold all their Russian sleighs previous to Dec. 15th.

REMOVAL.—A. A. White & Co., Boston, Mass., have removed from Sudbury-st. to new and more commodious quarters at 89 and 91 Union-st.

NEW FACTORY.—Skinner & Scott, of Lynn, Mass., have moved into their new factory, where their facilities are greatly superior to those offered by their old shop. Business is not exactly dull with them.

NEW-HAVEN CARRIAGE-BUILDERS are thought to have less than a nine-months' stock of work on hand, even though the coming season prove only fair to middling.

MR. A. N. PARRY, of Amesbury, Mass., is busy at present on export work. We wish more of our friends had the same useful crutch to depend upon in these limping times.

PERSONAL.—Mr. E. D. Moore, the ever-welcome representative of the Royer Wheel Co., of Cincinnati, O., is now working eastward, and will spend the entire month of January in the New-England States.

CHEAP SLEIGHS.—D. N. Forbes & Son and W. F. Brown, of Westboro, Mass., are turning out excellent work for the price. The design and finish of their sleighs are better than would be thought possible for the price.

GOT 'EM AGAIN.—Mr. Manley McClure has been to Amesbury. Indeed, his presence there is something like the dew of a continual blessing. At any rate, it will be useless for anyone to talk iron to that trade, for he has them stocked for a generation; and the fun of it is—they like it.

NEW AGENCY.—The Evans Artificial Leather Co., Boston, Mass., have opened a branch office in Chicago, where a complete assortment of their goods will be kept for the convenience of the Western trade. Mr. J. T. Scott, their representative, has his headquarters at No. 72 Lake-st. in that city.

NEW CHILD'S-SEAT.—F. A. Babcock & Co., of Amesbury, Mass., are showing a nicely designed four-passenger extension-top, whose interesting feature is an automatic child's-seat, that can be readily raised or lowered by a slight movement of the driver's-seat.

A GOOD START.—W. I. Atwood & Co., of Amesbury, Mass., have enlarged their factory, and, in addition to making a very attractive line of plated carriage mountings, they have a couple of leading specialties in the Sawyer prop-nut and the Crown Prince band.

WELCOME HOME!—Mr. W. H. Atwood, Secretary of Henry Hooker & Co., New-Haven, Conn., returned to that city on Dec. 16th from his trip around the world. We are glad to know that he successfully accomplished the objects he sought, including the booking of numerous export orders.

READY FOR THE FRAY.—The Eureka Axle Co., Lynn, Mass., have a specialty that has the merit of novelty and excellence so far as tried. They have completed arrangements with Ives & Miller and the Concord Axle Co. to manufacture their light and heavy axles, and are now ready to talk business with carriage-makers.

GOOD BUTTON: GOOD TRADE.—The American Solid Leather Button Co., Providence, R. I., have made solid progress with the carriage trade. Their button is cordially approved of wherever used. They are in process of capturing the Amesbury market, and have already made inroads on Cincinnati. They are now preparing to paralyze price-currents with a cheap and good article.

NEW-ENGLAND—continued.

TRADE REPORTS FROM NEW-HAVEN.—Reports from our New-Haven correspondents seem to clearly indicate that the aggregate production of carriages in that city during the year 1884 was less than one-half the average.

PERSONAL.—Throughout November, Mr. Fred. Buckingham, connected with the Beecher Mfg. Co., of Meriden, Conn., was traveling through the East, and putting the trade on a wrought-iron diet, consisting of his company's goods.

ANOTHER HONORABLE.—The election for Mayor in New-Haven, Conn., on Dec. 2d, resulted in the choice of Mr. George F. Holcomb, senior partner of the house of Holcomb Bros. & Co., carriage body-makers to the trade, by a majority of 1,213. His Honor-elect will please accept *The Hub's* hearty congratulations.

BAILEY'S SLEIGHS.—Mr. S. R. Bailey, of Amesbury, Mass., this season showed his faith in the future by increasing his production of sleighs fifty per cent., building over 600 instead of 400, besides improving the quality and advancing the price. As a matter of fact, they probably represented the highest grade of trade work ever produced in this line, and we are happy to learn that Mr. Bailey found a ready demand for them at his own prices.

A NEW CORNER-IRON.—We recently saw some very attractive oval body corner-irons that are made by Messrs. English & Mersick, of New-Haven, Conn. Heretofore these irons have been hand-forged, and used only by high-class makers on their body work, as a distinctive finish; but they can now be obtained by the trade generally from the above concern. In their new catalogue, about to be issued, will also be found an interesting series of their new landau irons, adapted both to French or parallel system. We understand that English & Mersick declined to enter into the carriage hardware pool recently formed.

MIDDLE STATES.

FIRE.—Fitzgibbons & Crisp's carriage factory, Trenton, N. J., was burned on the morning of December 9th. Loss \$20,000, almost entirely insured. Forty-three men are thrown out of employment.

PERSONAL.—A handsome Christmas remembrance received from Mr. S. P. Darlington, of West Chester, Pa., on Dec. 22d, gives evidence that that old friend of *The Hub* was in Dresden on Dec. 7th.

WILMINGTON, DEL., in spite of dull trade, has a comparatively small stock of finished work on hand, which promises to be promptly worked off in case of a fairly active spring demand.

FIRE.—The carriage factory of Wm. Mullmeyer, Nos. 49 and 51 North-st., Baltimore, Md., was partially destroyed by fire on the night of Nov. 2d. Loss on building not stated, but fully covered by insurance. Loss on stock, \$2,000, insured for \$1,000.

RECENT TRADE REPORTS FROM WILMINGTON, DEL., show that less than one-third the usual number of carriages were built in that city during the year 1884. Some of our readers may be inclined to gaze upon this fact as a melancholy one. We do not. It argues, on the part of our Wilmington friends, either keen foresight or good luck. As it was, they had a few more than they could sell.

OBITUARY.—Died, on Dec. 4th, at his home in Newark, N. J., John T. Leverich, senior partner of the firm of Leverich & Enders, aged 63 years. Mr. Leverich was born in Newark in 1820, and early in life he was apprenticed to Wm. Kennard, a carriage-builder of that city. After the great fire in 1835, which destroyed Mr. Kennard's factory, he completed his apprenticeship with James M. Quinby & Co. In 1852, he formed a copartnership with W. B. Enders, under the style of Leverich & Enders, which continued business without change of title until a few months ago, when the stock and fixtures were sold, and the factory was closed. Mr. Leverich was a man of strict integrity, and a most courteous gentleman. He became a member of the Carriage Builders' National Association in 1876, but ill-health prevented his regular attendance. For nearly three years past he had been unable to give much attention to business, and during the past year he was confined to his house. He acquired a competency, and leaves a wife and one daughter well provided for.

WESTERN STATES.

FIRE.—The carriage factory of Smith & Moore, Kokomo, Ind., was burned on Nov. 24th.

"OLD COMFORT" is the taking title applied by Messrs. E. M. Hallowell & Co., of St. Paul, Minn., to one of their standard styles of sleighs.

PERSONAL.—Mr. Henry Timken proposes to start in January on an extended Southern tour, including New-Orleans, Florida and Cuba. He has a gear at the exposition.

CATALOGUE.—The Paddock-Hawley Iron Co., of St. Louis, have issued a large catalogue, in which appear as advertisers many prominent firms whose goods they handle.

ANOTHER FAVORABLE STRAW.—Mr. E. D. Moore, of the Royer Wheel Co., Cincinnati, O., writing under date of Dec. 13th, says: "While trade is still what could be called dull, I find it improving, and I expect a fair trade during the coming season."

A. E. FOOTE, the well-known carriage dealer of Milwaukee, Wis., who acts as general agent for Mitchell, Lewis & Co., the Bruce Carriage Co., and Sechler & Co., writes under date of Dec. 5th: "You may record us in *The Hub* as one house that has something to do."

VICTORY.—As will be seen by reference to our business pages, Mr. Henry Timken has produced a rooster, and proceeds to crow lustily over the sweeping decision of the Court in his favor, in his suit against the Columbus Buggy Co. The text of the decision should at least be read by everyone.

TRADE REPORT FROM ST. LOUIS.—Business is quiet, but there seems to be a feeling that it is safe to buy for present needs, at ruling prices, and manufacturers are placing orders. Several makers talk about increasing their output this season, but at the same time propose to lower quality and price of work.

VERY PICTORIAL.—The King Varnish Co., of Akron, O., have sent us a "hanger," done in colors by lithography, which is very attractive. It represents a carriage and pair, with figures, and a neat advertising card in one corner. We have added it to our growing art gallery on the walls of *The Hub* office.

THOSE KROHS.—Messrs. C. Z. Kroh & Bro., of Toledo, O., have issued their new illustrated catalogue on tops, etc., which, besides its attractive inside contents, has a decidedly taking cover, bearing two crows seated on a bough, probably discussing the merits of the top, which plainly suggest the reason why Kroh is on top.

CHANGES.—The firm of E. M. Hallowell & Co., late Quimby & Hallowell, of St. Paul, Minn., opened on Dec. 1st their new show-room at Nos. 503 to 611 Minnesota-st., and utilized the opportunity by giving an attractive sleigh exhibition. Their New-Year's circular, printed in two colors, and bearing specimen designs of a sleigh and buggy, is particularly neat and attractive.

AT THE NEW-ORLEANS EXPOSITION.—The Egan Company, of Cincinnati, O., have had many favorable opinions expressed as to the merits of their new Universal Woodworker, among the latest of which is the following contained in a letter from a large furniture manufacturing firm, Messrs. F. E. Westholz & Co., at New Orleans, La. They say: "The woodworker gives every satisfaction, and already we feel that we cannot do without it, and are only sorry that we did not order it sooner. We shall be happy at any time to recommend this machine and the planer; and show their merits to visitors you may send to examine them in operation." The Egan Company will be represented at the New-Orleans Exposition by several improved machines, and will have a competent man in charge to exhibit their practical workings to visitors interested in this branch of mechanical science.

GOODS SPIRITED AWAY.—A writ of replevin was issued on Nov. 28th, against the Active Mfg. Co., Cincinnati, O., on the application of Patrick Reilly, leather manufacturer, of Newark, N. J., claiming a lot of goods. Mr. Reilly sold a bill of goods for \$2,400 to the Enterprise Dash Company, of Chicago, in September last, and took a chattel mortgage on the goods, but afterward received word that the goods were being taken away by Mr. Burdge, superintendent of the Enterprise works. Mr. Reilly traced them to Indianapolis and then to Cincinnati, where he found them in possession of the Active Mfg. Co. Mr. Monteith, of that company, says he bought them of a woman in Indianapolis for \$1,300. Constable Victor Seibert took possession of them. The Active Mfg. Co. were evidently innocent buyers of the goods.

PRESENT CONDITION OF THE WESTERN CARRIAGE TRADE.—One of our most valued and best posted correspondents in the West, Mr. F., has forwarded us from Toledo, O., under date of Dec. 19th, the following detailed report of the present condition of the carriage trade in the West as gathered from his recent extended travels. He says: "Having now completed my fall visits to Western carriage-makers, a few reflections upon the trade as I view it, may not be wholly valueless to you. That very general stagnation has characterized trade for the past six months, is true; but it is no more true of carriage-making than of every other branch of business, and I believe the carriage-makers stand better to-day, with fewer failures and less embarrassment than has attended most other branches of trade. The number of buggies manufactured, compared with the intentions and plans of the early season, will not reach 50 per cent. Men who started to build 1,500 buggies, stopped at 500, 600, or 700, and the same general proportions are true of those who build greater or less quantities. The result is obvious. At the present time there are fewer buggies in the hands of manufacturers and their agents, than at any time during the past five years. I could give you a long list of manufacturers in proof of my statement, but I have always avoided giving names where business secrets are involved. What I have said of buggies is also true of cutters, and very few manufacturers of cutters are now in market. Michigan producers of cutters are among the largest and most thrifty in the country, and if the season continues favorable to trade, the makers will find themselves short of stock before January 1st, 1885. The three largest manufacturers in the State are the Michigan Buggy Co., Kalamazoo Wagon Co., of Kalamazoo, and A. Clark & Co., of Lansing. Neither of these houses has any surplus stock of cutters on hand or in process of making. The extremely low prices at which very handsome and well-trimmed cutters are sold, creates a prompt demand for them. Surely, from \$20 to \$22 for a handsome well-made Portland cutter is pretty cheap, but that is the price. The little country shops which formerly built cutters for local trade, and sold them for from \$50 to \$100 each, do not pretend to build any now, but they buy as the trade demands, and really make more money than they ever did in manufacturing. The same is also true of buggies. I can buy in Columbus, O., or Kalamazoo, Mich., a better made buggy for \$100, than any country shop can build for \$150, while the latter lose money at that price. Very high-priced buggies, excepting in large cities, and the extremely low-priced work that has had such extensive sale, are both outside of present demands. The grade of work now wanted and which sells, is the good medium grade; but it must be well-made and well-trimmed, or there is no sale for this. One present drawback to sales is the uniformity of styles and the duplicates of cost which every manufacturer seems determined to follow. If Mr. A. builds a buggy for \$90, Mr. B. and Mr. C., to the end of the alphabet, tries to build exactly the same buggy, using the same axles and springs, and if possible the same shade of cloth, and of the same weight. This naturally leads to cutting prices, while if some man had independence to add, say \$1, \$2, or even \$5, in real value to the trimming, and leave something for his salesman to talk about, better profits could be realized. I have noticed this fact for years, and am fully convinced of the soundness of my reasoning. The prospects for early trade are not flattering, but I confidently predict that 1885 will prove a better year than 1884. Politicians will talk, and Congress will continue to make blunders, and some people will be frightened; but the great industries of the country must advance."

FOREIGN.

MEXICO PARTLY OPENS HER DOORS.—Under the reciprocity treaty between the United States and Mexico, the following articles are to be admitted free of duty into Mexico: cars and carts with springs, two wheels; small hand-carts, four wheels; coaches and cars for railways; and carriages and diligences of all kinds and dimensions.

FORDER & Co., of Wolverhampton, Eng., the celebrated English builders of Hansom Cabs, append the following cheering item to their last letter: "We are, in fact, so full of orders that we are not in a position to give quotations just at present, but shall take pleasure in communicating with you fully on the matter at an early date."

PERSONAL.—MR. WILLIAM PHILIPSON, of Messrs. Atkinson & Philipson, Newcastle-on-Tyne, Eng., Associate of Science, Durham University, and graduate of the Institute of Mechanical Engineers, has been elected a graduate of the Institute of British Carriage Manufacturers, having received his full honors certificate in the City and Guilds London Institute Examination.

ADVERTISEMENT EXTRAORDINARY.—The following appears in the last number of our esteemed German contemporary: "An offer to carriage manufacturers and their respective foremen.—The proprietress (widow) of a large carriage factory in a city of first rank, desires to marry again an experienced and honest trimmer or painter, with some means, and not under 48 years of age, as the management of the large business, with numerous hands, proves too much for her alone. Honest offer, and statement of age, means and position occupied up to the present time, may be sent by post prepaid to the editor of this paper, *Meitinger's Chaisen und Wagenbau*, who will attend to further correspondence."

TRADE

UNITED STATES.

NEW-YORK.

NEW-JERSEY.

PENNSYLVANIA.

DELAWARE.

DISTRICT OF COLUMBIA.

MAINE.

VERMONT.

MASSACHUSETTS.

RHODE ISLAND.

CANADA.

FOREIGN.

MARYLAND.

LOUISIANA.

TEXAS.

OHIO.

INDIANA.

ILLINOIS.

MICHIGAN.

TENNESSEE.

KENTUCKY

MISSOURI.

KANSAS.

IOWA

MINNESOTA

COLORADO

CALIFORNIA

—And for the Pacific Slope.—

VALENTINE & COMPANY,

MANUFACTURERS OF

MANUFACTURERS OF
Fine Coach and Railway Varnishes and Colors,

NEW-YORK.

245 Broadway.

CHICAGO,
68 Lake-street.

BOSTON,
153 Milk-street.

PARIS,
91 Champs-Élysées.

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Conrad B. Day & Co., Philadelphia, Pa... 728
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct..... 742
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York. 731
Kemper Bros., Cincinnati, O..... 728
Ten Eick & Kent, 1553 Broadway, New-York 728
S. D. Kimbark, Chicago, Ill..... 723

AXLES.

- R. Cook & Sons, Winsted, Conn..... 718
Carriage and Wagon Axles.
Dalzell & Co., So. Egremont, Mass. 718
Improved Collinge Axle.
Eureka Axle Co., Lynn, Mass..... 718
Eureka Axle.
Goodyear & Ives, New-Haven, Ct..... 728
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O.....
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 725
Fine and Medium Axles. (See Also Springs.)
A. E. Smith & Warner Axle Co., Wilmington, Del..... 718
Smith, Carswell and Vandenbraak Axles.

BODIES.

- F. T. Clymer, Wilmington, Del..... 721
Carriage Bodies and Carriage Parts.
The Dann Bros. & Co., New-Haven, Conn. 741
Carriage Bodies and Bent Woodwork.
Jas. Driscoll & Sons Co., Springfield, O.... 738
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 714
Pat. Bent Sill Phaeton and Carriage Bodies.
S. D. Kimbark, Chicago, Ill..... 723
Burr Patent Wagon Bodies.
Miller Carriage Co., Bellefontaine, O..... 733
Specialty: Eureka Bodies.
C. T. Townsend, New-Haven, Conn..... 740
Fine Carriage Body Work.

BOLTS.

- Norwich Bolt Works, Norwich, Conn..... 732
Genuine Norway Iron Bolts.
T. Skelly, Philadelphia, Pa..... 713
Philadelphia Bolt Works.

CARRIAGES FOR THE TRADE.

- D. A. Altick & Sons, Lancaster, Pa..... 721
Phaetons and light work.
S. R. Bailey, Amesbury, Mass..... 724
Sleighs in the Wood and Iron.
Wm. Lockwood, Madrid, N. Y..... 738
Buckboard Wagon.
Renick, Curtis & Co., Greencastle, Ind.... 732
The Renick & Curtis Patent Road Cart.
Youngstown Carriage and Wagon Co., Youngstown, O..... 739
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 728
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa.
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 729
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Active Mfg. Co., Cincinnati, O..... 741
E. N. Baldwin, Birmingham, Conn..... 742
Stump Joints.
Cincinnati Screw and Tap Co., Cincinnati, O. 732
Drills, Screws, Taps, etc.

- The E. D. Clapp Mfg. Co., Auburn, N. Y.. 736
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.

- C. Cowles & Co., New-Haven, Ct..... 735
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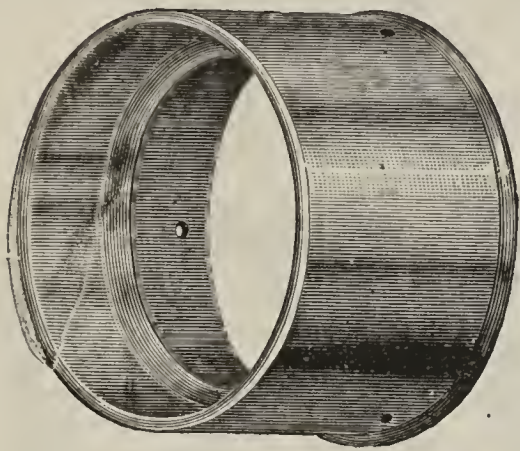
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BUTTONS



Timken Victorious in his Suit against Columbus Buggy Company !

THE UNITED STATES OF AMERICA, EASTERN DIVISION } ss.
OF THE SOUTHERN DISTRICT OF OHIO.

At a stated term of the Circuit Court of the Eastern Division of the Southern District of Ohio, in the Sixth Judicial Circuit of the United States of America, begun and had in the Court Rooms, at the city of Columbus, Ohio, in said District, on the first Tuesday of December, being the second day of that month, in the year of our Lord One Thousand Eight Hundred and Eighty-four, and of the independence of the United States of America the One Hundred and Ninth; *present*, the Hon. George R. Sage, Judge.

On Tuesday, the ninth day of December, 1884, among the proceedings had were the following, to wit :

HENRY TIMKEN, COMPLAINANT,

versus

GEORGE M. PETERS, OSCAR G. PETERS and CLINTON D. FIRESTONE,
(composing the firm of Columbus Buggy Company,) RESPONDENTS.

*In the Circuit Court of the United States for the Southern
District of Ohio, Eastern Division.*

—==DEGREE==—

The above case coming on to be heard at the December term of said Court, before the Honorable George R. Sage, Judge, on the first day of December, 1884, the parties being present by their respective attorneys of record in the cause, and the proofs, *i. e.*, the complainant's letters patent, the pleadings and stipulation in the case being read and heard in the Court, it is found and finally adjudged and decreed in the case as follows :

That said Timken Patent, being No. 197,689, and dated the 27th day of November, 1877, is a good and valid patent, and that the complainant is the exclusive owner of said patent and is entitled to the exclusive right to make, use, and vend to others the invention therein described and claimed, and is entitled to all the privileges therein secured to him.

Also, that reissued patent No. 9,542, and dated 25th day of January, 1881, is a good and valid patent so far as the third claim therein is, and that the complainant is the exclusive owner of said patent, and is entitled to the exclusive right to make, use, and vend to others to use, the invention described and claimed therein, and entitled to all the privileges therein secured to him.

That the defendants have jointly and severally infringed said patent No. 197,689, dated November 27th, 1877, and known as the Timken Patent, and the third claim of reissued Patent No. 9,542, and dated 25th January, 1881, and the exclusive rights of the complainant therein expressed and claimed, and has made and used, and vended to others to use, said inventions in said patents so secured to the complainant, and authorized others so to do, without the consent or authority of the complainant and contrary to law, by making, using, and vending to others to use, and authorizing others to make, use, and vend to others to use, vehicle springs substantially like and embodying the same mechanical construction, operation and combination of parts as are described and claimed in Patent No. 197,689, dated Nov. 27th, 1877, and as are described and claimed in the third claim of the reissue Patent No. 9,542. And the defendants jointly and severally, their agents, attorneys, workmen, employees, and all who act by, through, or under them, or in any way by their authority or direction, are hereby perpetually and finally restrained and enjoined from the further violation of the exclusive rights of the complainant and the infringement of said letters patent No. 197,689, dated November 27th, 1877, and reissued patent No. 9,542, and from making, using, or vending to others to use, vehicle springs substantially like or embodying the same mechanical construction and operation or combination of parts as are described and claimed in Patent No. 197,689, dated Nov. 27th, 1877, or as described and claimed in the third claim of the reissued Patent No. 9,542, or any part thereof, to be used in said combination.

And that they, their agents, attorneys, workmen, employees, and all persons who act by, through or under them, or by their authority, are hereby perpetually and finally restrained and enjoined from making, using, or vending to others to use, vehicle springs in combination with side-bars and body of a vehicle, said springs being attached to the under side of the body at opposite sides of the bottom, then crossing each other and connected to the side-bars at opposite sides of the vehicle, to which they are attached to the body. Also, that they be enjoined and restrained from making, using, or vending to others to use, vehicle springs consisting of two springs lying side by side and connected together, in combination with side sills (or side-bars) and cross-bars for supporting the body in horizontal position between the side sills (or side-bars).

Also that they be enjoined and restrained from manufacturing, making, using, or vending to others to use, vehicle springs constructed substantially after the specification of Saladee's Patent, being No. 239,850, or in accordance with the drawing therein, or as shown by a copy of said patent filed as an exhibit in this cause, and from making, using, or vending to others to use, vehicle springs termed and known in the trade as "The Automatic Spring," and that the defendants be jointly and severally adjudged to pay to the complainant herein the sum of Three Thousand Dollars damages, as full satisfaction for all springs manufactured as aforesaid, or used or sold by them or under their authority, and in full satisfaction for all past infringements as aforesaid by them or their licensees, and the costs of this suit.

THE UNITED STATES OF AMERICA, EASTERN DIVISION } ss.
OF THE SOUTHERN DISTRICT OF OHIO.

I, B. R. Cowen, Clerk of the Circuit Court of the United States, within and for the Division and District aforesaid, do hereby certify, that the foregoing Decree is truly taken, and correctly copied from the Journal of said Court.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court, at the city of Columbus, this ninth day of December, A. D. 1884.

[SEAL.]

B. R. COWEN, *Clerk.*
THOMAS COWEN, *Deputy.*

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A PERFECT FINISHING VARNISH.



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Durable, of Simple Construction
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No. 1.

Loop with two Buckles. Size of Loop, $\frac{5}{8} \times 2\frac{1}{2}$ inches.

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LEATHER LOOPS.

With or without Metal Fastener.

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COMPANY,

PITTSBURGH, PA.

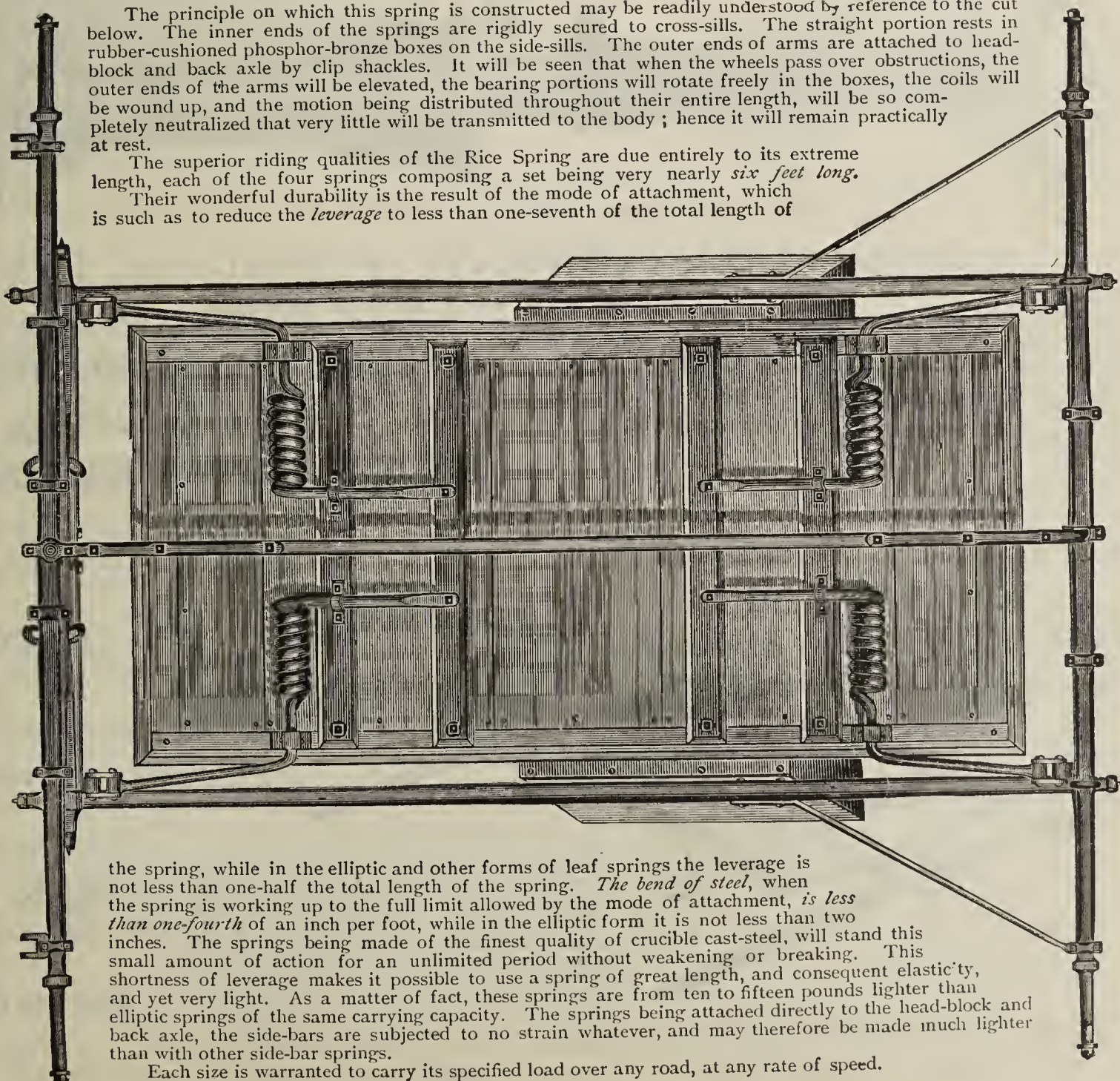
WM. & HARVEY ROWLAND,
Frankford, Philadelphia.

HENEY & LACROIX,
Montreal, Canada.

The principle on which this spring is constructed may be readily understood by reference to the cut below. The inner ends of the springs are rigidly secured to cross-sills. The straight portion rests in rubber-cushioned phosphor-bronze boxes on the side-sills. The outer ends of arms are attached to head-block and back axle by clip shackles. It will be seen that when the wheels pass over obstructions, the outer ends of the arms will be elevated, the bearing portions will rotate freely in the boxes, the coils will be wound up, and the motion being distributed throughout their entire length, will be so completely neutralized that very little will be transmitted to the body; hence it will remain practically at rest.

The superior riding qualities of the Rice Spring are due entirely to its extreme length, each of the four springs composing a set being very nearly six feet long.

Their wonderful durability is the result of the mode of attachment, which is such as to reduce the leverage to less than one-seventh of the total length of



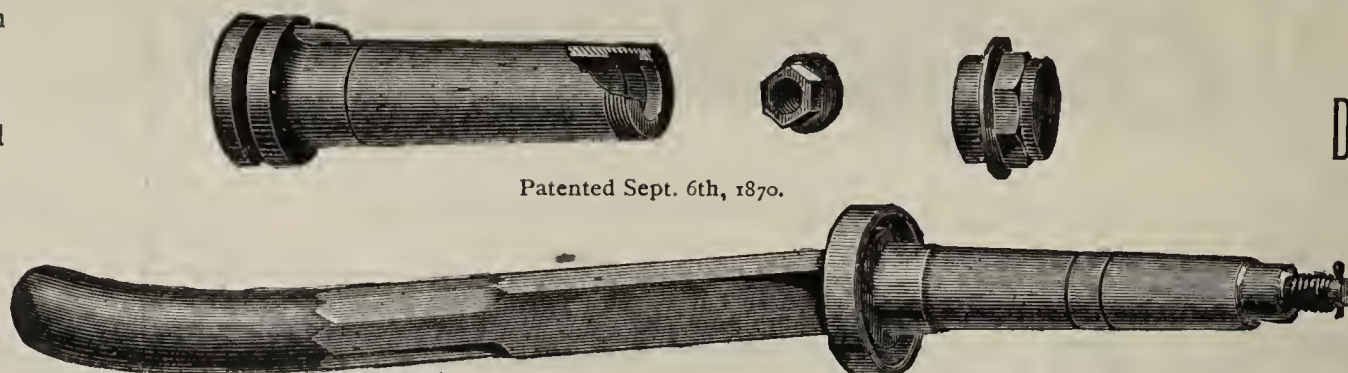
the spring, while in the elliptic and other forms of leaf springs the leverage is not less than one-half the total length of the spring. The bend of steel, when the spring is working up to the full limit allowed by the mode of attachment, is less than one-fourth of an inch per foot, while in the elliptic form it is not less than two inches. The springs being made of the finest quality of crucible cast-steel, will stand this small amount of action for an unlimited period without weakening or breaking. This shortness of leverage makes it possible to use a spring of great length, and consequent elasticity, and yet very light. As a matter of fact, these springs are from ten to fifteen pounds lighter than elliptic springs of the same carrying capacity. The springs being attached directly to the head-block and back axle, the side-bars are subjected to no strain whatever, and may therefore be made much lighter than with other side-bar springs.

Each size is warranted to carry its specified load over any road, at any rate of speed.

Dalzell's Improved Collinge Axle.

Greatly superior in
all respects
to all other so-called

Half Collinge
and
Improved Collinge
Axles.



Patented Sept. 6th, 1870.

For particulars, address

Dalzell Axle Co.,

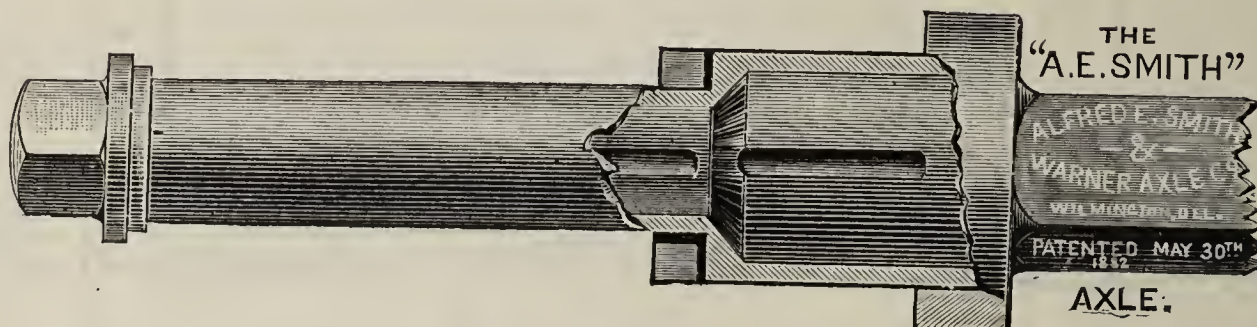
SOUTH
EGREMONT,
MASS.

Half-Patent and other styles of Axles, of Best Material and Workmanship.

THE "A. E. SMITH" AXLE.

WITH NUT ON THE ARM.

Strongest,
Lightest-running,
and only Swell-shoulder Axle
having a
Perfect Bearing
the Entire Length
of Arm.



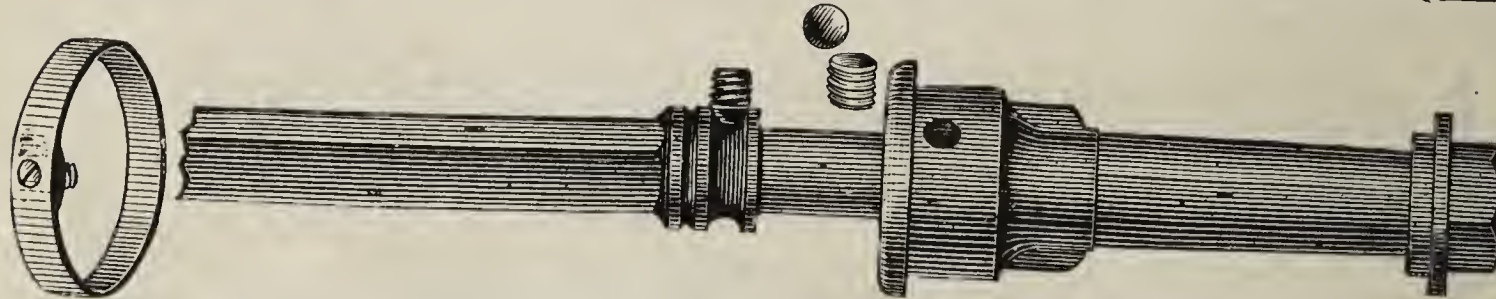
PRICES
UNEQUALED,
WITH
QUALITY
A
CONSIDERATION.

SEND FOR SUPPLEMENTAL PRICE-LIST AND CIRCULAR OF THE

Alfred E. Smith & Warner Axle Co., MANUFACTURERS OF Vehicle Axles of Sterling Quality.
WILMINGTON, DELAWARE.

"A. E. Smith." "Carswell and Vandenbraak."

Patented—EUREKA AXLE.—July 8, 1884.



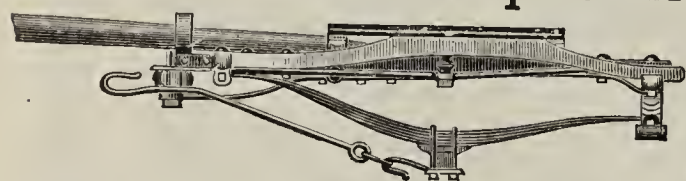
7th. Will not heat. 8th. Does not require oiling oftener than one to three months. To sum it all up, it beats all others. They will soon be for sale by all the principal dealers in the country. Price-lists will be mailed to all interested parties in a few days.

THIS Company offers to the public a Carriage Axle destined, we believe, to supersede all other Axles now in use. It is operated on an entirely new principle. The wheel is held on by a ball running around the Axle in a groove, the ball being held in place by a cup-shaped screw, as shown in cut above. This is NOT a ball BEARING Axle.

Its merits are: 1st. Absolute safety. 2d. Extra strong. 3d. Perfect cleanliness. 4th. No washers required. 5th. Noisless. 6th. Less friction than any other. No shoulder or end friction.

EUREKA AXLE COMPANY, 137 Broad-street, LYNN, MASS.
S. H. ATKINS, General Manager.

Side view of
Shaw's Patent

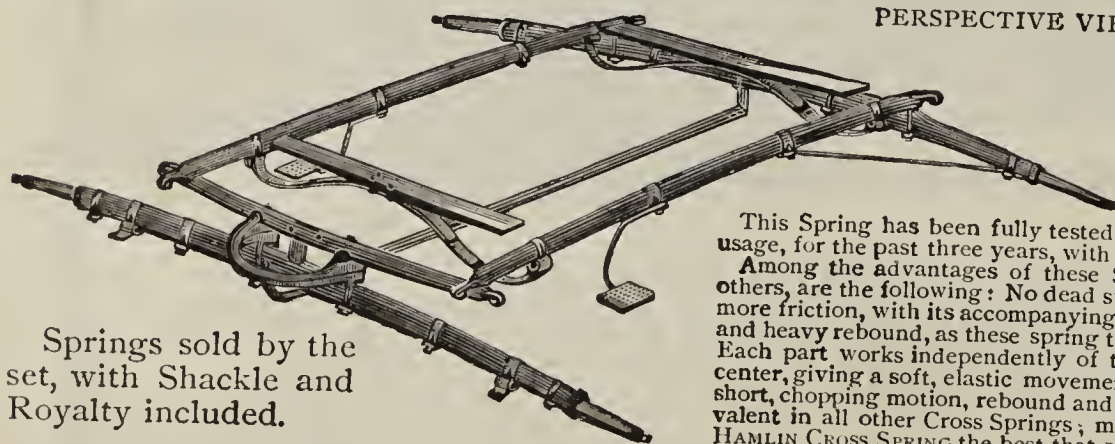


Draft-Equalizing, Portable Pole, Shifting Whiffletree
Platform Spring Gearing, made in the white, for the
Trade, by the
NATIONAL VEHICLE CO.,
RACINE, WIS.

Send for Illustrated Circulars.

The HAMLIN Patent. A New Era in Cross Springs!

CROSS-SPRING
FOR SIDE-BAR VEHICLES.



PERSPECTIVE VIEW,

showing
separation of
the leaves
of spring, and
manner of
clipping.

This Spring has been fully tested, by the severest usage, for the past three years, with entire success. Among the advantages of these Springs over all others, are the following: No dead steel to carry; no more friction, with its accompanying slow movement and heavy rebound, as these spring the entire length. Each part works independently of the other at the center, giving a soft, elastic movement, free from the short, chopping motion, rebound and side-roll so prevalent in all other Cross Springs; making the G. B. HAMLIN CROSS SPRING the best that has yet been produced, as the body can be set as low as the Brewster

Springs sold by the set, with Shackle and Royalty included.

As we are the only Company licensed by the Patentee to manufacture and sell these Springs in the United States, all others are infringements and will be held accountable by said Patentee. DISCOUNTS GIVEN ON QUANTITIES.

R. Tomlinson Spring and Axle Works, Bridgeport, Conn.

Established 1839, and in continuous business since that time.

R. COOK & SONS,

MANUFACTURERS OF

Carriage and Wagon Axles,
WINSTED, CONN.

Highest Medal awarded us at Vienna for our Artists' Oil Colors in Tubes.

CHAS. MOSER & CO.,

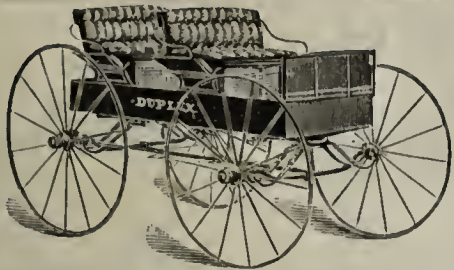
61 MAIN-STREET, CINCINNATI, OHIO.

MANUFACTURERS OF

Superfine Coach Colors in Japan,

ARTISTS' OIL COLORS IN TUBES.

Importers of Carriage-makers' Materials of every description.



Our Four Seat, "DUPLEX," No. 6.

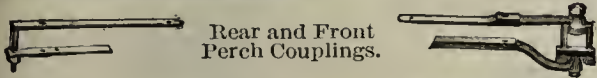
Following are the detached parts as we furnish same for the "Duplex" Gear.



REAR TRUSS



FRONT TRUSS



Rear and Front Perch Couplings.



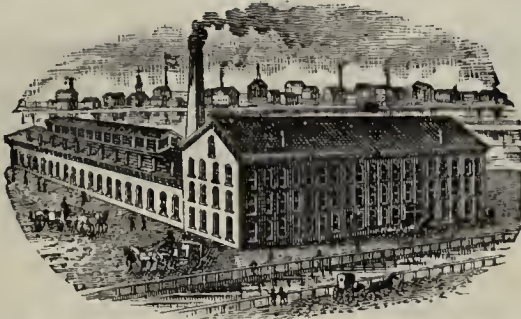
Axle Stay Ends and Centres.

→ A NEW ERA ←

In Carriage Building.

THE "DUPLEX"

For all classes of business and pleasure vehicles.



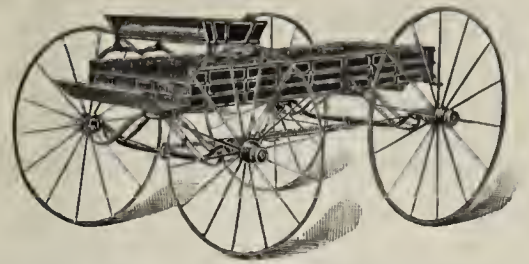
Factory at Birmingham, Conn.

For Price-List of Gears and parts, address

C. W. SALADEE,

Birmingham, Conn.

Patentee and Sole Manufacturer for the U. S.



Light Delivery Express, No. 8.



The "Duplex" Gear, complete.

The weight imposed is carried next the Hub, hence, No "Springing" of the Axle. The Springs are "Self-compensating," hence, No Links to become loose and "Shaky." The length of Springs secures requisite motion. Carries the body as low as a Side-bar. Attractive in style, and is, Unsurpassed for its simplicity of construction.

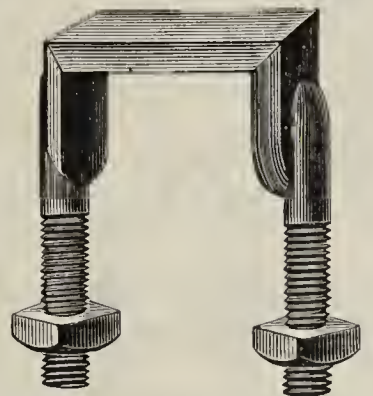
H. M. STRIEBY & CO.,

NEWARK, N. J.,

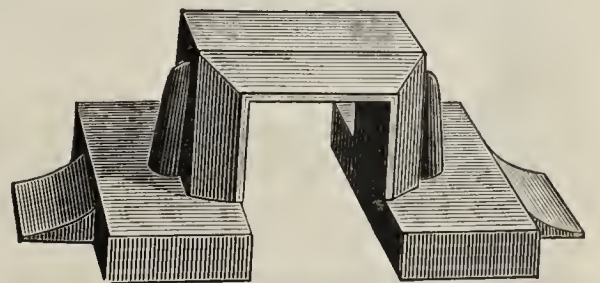
Manufacturers of **Drop Forgings**

FOR CARRIAGES.

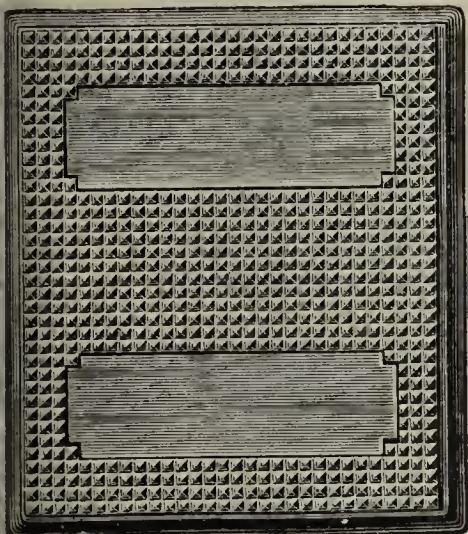
A Complete Line of Step Pads.



COACH SPRING CLIPS.



COACH AXLE CLIPS.



PANEL PATTERN.

(Patent applied for.)

Silvester Patent Tire

IS A UNIVERSAL FELLOE CLAMP.

The OPEN-HEARTH STEEL I manufacture this Tire from, is warranted to me to stand all the strain I claim for it. It is specially made for this use. It is tough, and cannot be broken, but will bend cold in any shape. It will stand a strain of 60,000 pounds to the square inch.

A FEW OF THE ADVANTAGES THIS TIRE HAS

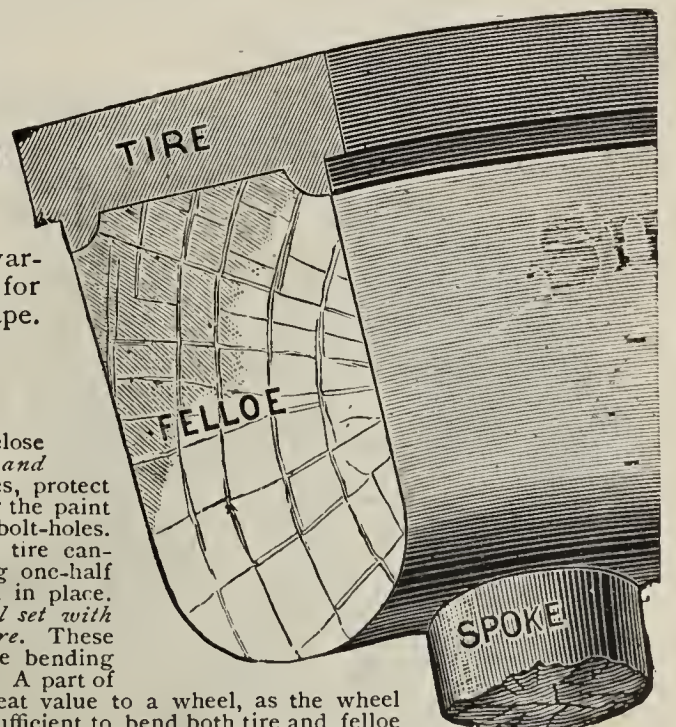
This Tire is a positive and absolute protection to the felloe. The vertical flanges inclose the felloe in such a manner as to prevent the tire from coming off; the use of screws and bolts being unnecessary. The lateral flanges which project outward beyond the felloes, protect the felloes from damage by railroad tracks, curb-stones, rocks, etc., which cannot wear the paint off or destroy the felloe. Both felloe and tire are benefited by being left without bolt-holes.

The felloes cannot split, as the flanges bind it together. The tire cannot slip off if the felloe shrinks, and does not need resetting one-half as often, by means of the felloe being constantly protected and in place. The wheel is strengthened sideways by the flanges. A wheel set with this tire will outlast three wheels with common bar-iron hoop tire. These flanges also strengthen the tire and felloe, and prevent the felloe bending inwards between spokes. It gives the tire a light appearance. A part of the edge is level with and painted like the felloe. It is of great value to a wheel, as the wheel cannot get out of shape, unless there is a tremendous strain, sufficient to bend both tire and felloe edgewise. To make a straight wheel, put this straight tire on, and the wheel must be straight and remain so, as it has the strength of the tire edgewise, combined with that of the felloe, to hold it in position. This Tire has great advantages over the common bar-iron hoop tire when necessary to reset it, as there are no bolts and screws to take out and replace, and the felloes are not ruined by boring four, eight or twelve extra holes at every resetting. This Tire cannot be broken; neither frost nor rocks can break it. The metal is made specially to meet these requirements. This Tire can be set by any blacksmith in one-half the time of the common bar-iron hoop tire, by being welded, then expanded by heat, so the tire easily slips over the felloe. When cold, the job is complete. The steel welds like soft iron. In resetting there are no bolts to take out or replace.

Common Tire after Two Years' Use. Felloe and Spoke Ruined. Entire New Rim, Hub, Spokes, Tire, Felloes, Bolts, and Painting a necessity.



Patent Tire after Two Years' Use. Felloes and Spokes Perfect. Entire Wheel Good as New.



C. B. CLARKE, 2021 Pine-street, ST. LOUIS, MO.

Price-list of Wheels with Silvester Pat. Tire.

Free on board of Cars in St. Louis, Baltimore, Boston, Buffalo,

Charleston, Chicago, Cincinnati, Cleveland, Galveston, Louisville, Memphis,

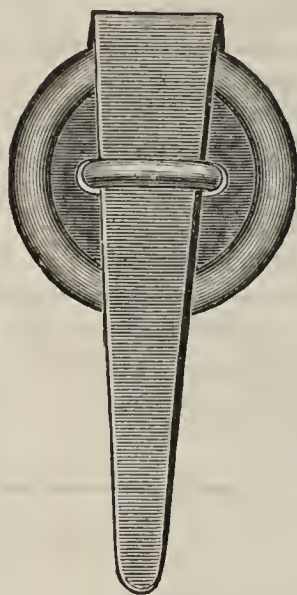
Milwaukee, Mobile, New-Orleans, New-York, Philadelphia, Providence.

Width of Tire,	Price per Set Sarven.	A	B	C	D
$\frac{7}{8}$		\$19 66	\$17 15	\$13 85	\$13 00
$1\frac{1}{8}$		20 70	18 15	14 85	14 00
$1\frac{1}{4}$		22 95	19 45	16 10	15 25
$1\frac{1}{2}$		29 15	27 00	23 60	19 75
$1\frac{3}{4}$		34 75	30 35	25 95	23 65
$1\frac{1}{2}$		40 35	35 90	34 80	32 55

Mf'r's of
Coach AND Car
VARNISHES

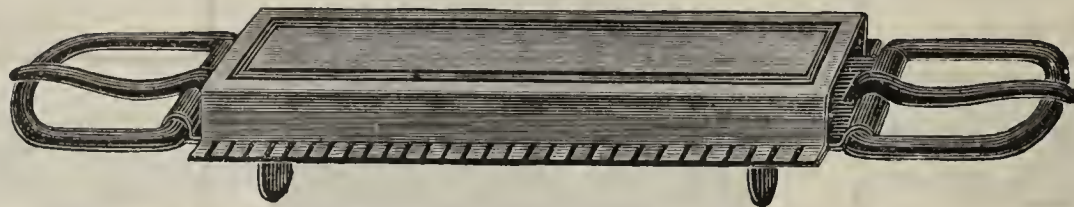
Stimson & Co.

149 Milk St.
BOSTON, MASS.



CRANDAL'S IMPROVED
Wagon Curtain
Patch.

Patented May 4th, 1880.
Re-issued Apr. 3d, 1883.

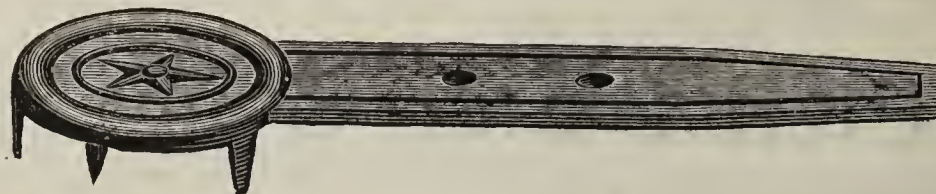


Patent Metal Buckle Loops.

GRANDAL, STONE & CO.,
BINGHAMTON, N. Y.,

Manufacturers of a Fine Line of

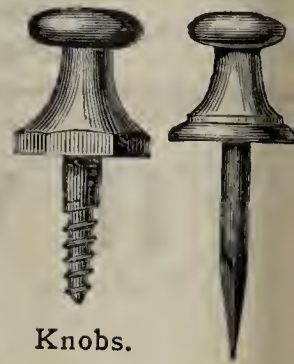
CARRIAGE TRIMMINGS.



Crandal's Patent Curtain Strap.



Knob Eyelets, with Leather.
Patented Dec. 3d, 1872.
Re-issued Sept. 16th, 1879.
Patented May 4th, 1880.
Re-issued Apr. 3d, 1883.



Knobs.

The Strongest and Easiest-
riding Spring made.

The · OLIN · Spring.

Patented August 30, 1881.
Reissued Aug. 21, 1883.

EVERY person, without exception, who has used these springs, pronounces them *head and shoulders* above all others now known to the carriage trade.

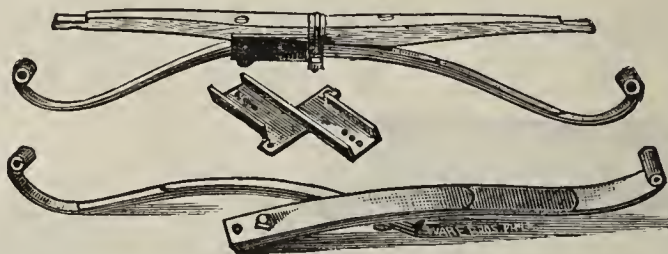
Here are a *few* points of advantage we claim:

First: They are adjustable, and can be fitted to all sizes of gearing or body, having a variation of four (4) inches (two inches increase or reduction in length from standard size, at which they are coupled at the factory).

Second: They carry the body in a better position, when unevenly loaded, than any flexible spring now before the public.

Third: Their simplicity of application enables any one, even

∴ FOR SIDE-BAR VEHICLES. ∴



an unskilled mechanic, to adjust them by simply changing the bolts in the crabs.

Fourth: By the manner of attaching the crabs in the center, we avoid all forward motion of the body upon striking obstructions, which with other Side-bar Springs, sometimes causes a breakage of spring-bar.

It would seem impossible to combine in any style of springs, greater strength, neatness, durability, ease of motion and application than we claim is to be found in ours, and we feel confident that it will be to your advantage to order a sample set, knowing full well that other orders will follow after a trial.

T. D. OLIN & CO., 181 West 4th-street, CINCINNATI, OHIO.



FINE

SARVEN
PATENT

Band Hub and Plain

WHEELS,

Manufactured from Choice

Second-Growth Timber,

BY

C. C. Anderson & Co.,

GALION, OHIO.

Send for Price-list.

Highest Award for Fine Wheels at Cincinnati Exposition, 1884 (Silver Medal).

Patent Crimped Leather Knob Eyelets.



Before Insertion.

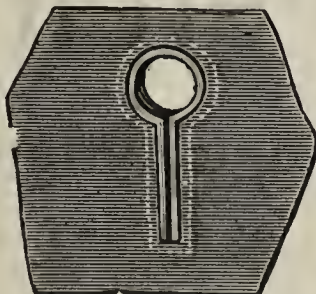
Neatest, Strongest, Most Durable, and positively the

ONLY PERFECT KNOB EYELET

in the market. Made of the toughest leather, doubled and crimped with a molded beaded edge.

Suitable for all work where a knob eyelet or button-hole is used. Send for sample.

NOTE.—Before placing these goods on the market, they were thoroughly tested



After Insertion.



and found to answer all requirements.
HARRIS BUTTON-HOLE COMPANY, Limited,
OFFICE—265 Broadway, New-York. FACTORY—14 Dunham Place, Brooklyn, E. D. **HIGHEST AWARD**



Buffalo Robes

AT WHOLESALE

FOR THE

Saddlery and Harness Trade.

WM. MACNAUGHTAN'S SONS,

Howard-street, (Near Centre, east of Broadway,) **NEW-YORK.**

CARRIAGE,

WAGON,



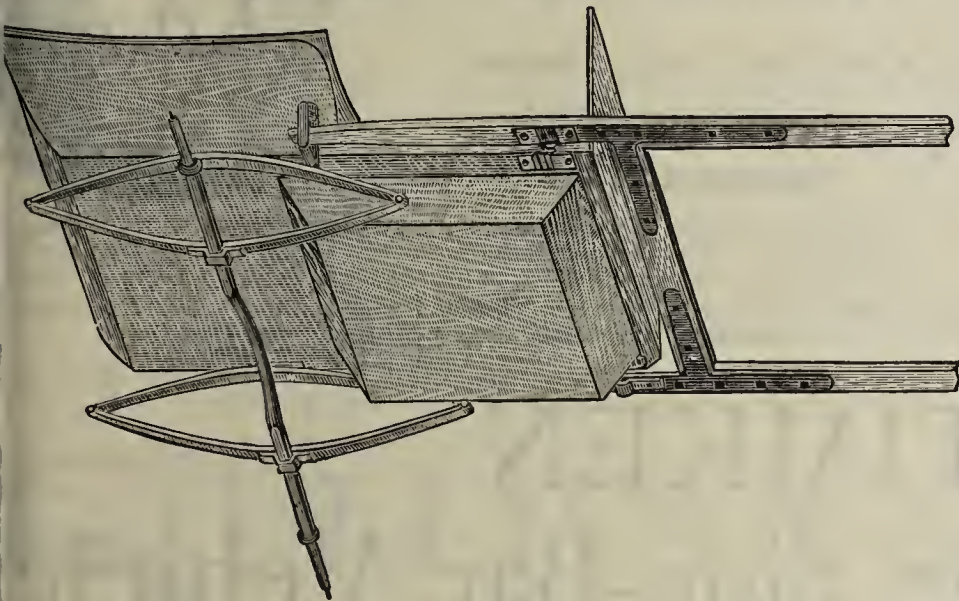
AND SEAT

SPRINGS.

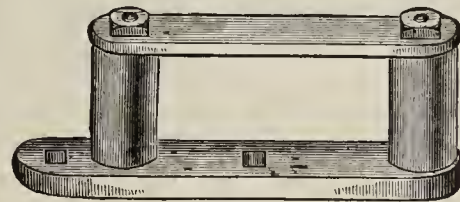
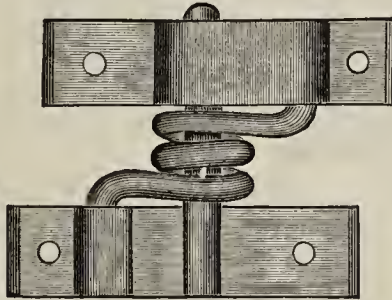
Licensed makers of Brewster, Fetzer, Timken, Parsons, Pennoyer and Groot Patent Springs.

KERR'S BRIDGEPORT CART IRONS.

Patented February 12, 1884.



THESE Irons can be adjusted to ANY STYLE of body or springs, requiring no blacksmith work. They are attached simply by bolts to body and shafts. POSITIVELY NO HORSE MOTION, and for a simple mechanical reason, viz. : It requires less force to bend the shaft spring than to overcome the inertia of the load, consequently it cannot jerk. The tension on shaft spring and rubber cushions makes it noiseless.



I am now prepared to furnish these Irons to the Trade at a price which will enable you to make the cheapest and best hung Cart in the market. The saving on smith-work is more than enough to pay for the irons.

Carts of any style in the wood and ironed at reasonable prices.

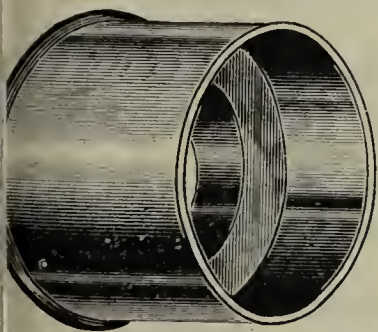
Price of Irons, per set, . . . \$4.00
Price of Irons, per doz., . . . 42.00

Address

KERR & REID,

BRIDGEPORT, CONN.

Liberal discount on large orders.



Established 1870.

M. T. GLEESON,

COLUMBUS, OHIO,

Manufacturer of

GOLD AND SILVER PLATED

Carriage Mountings.

Bands, Pole, Yoke, Shaft and Whiffletree Tips.

Phaeton and Buggy Seat Handles.

Half and Full Rails, for Buggy Seats.

Brass and Composition Castings.

Brass Bushings for Buggy Springs

Metal Patterns, etc.

Send for Catalogue, Terms and Prices.



No. 125. Buggy Handle.

No. 135. Buggy Handle.

D. A. ALTICK.

S. W. ALTICK.

W. B. ALTICK.

ESTABLISHED 1848.

D. A. Altick & Sons,

Manufacturers for the Trade of

Light Buggies, Jump-seat Carriages, and Phaetons,

42 and 44 W. Orange-street,

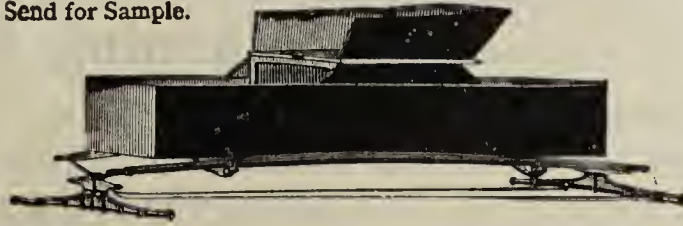
LANCASTER, PA., U. S. A.

WE desire to call the attention of Dealers to the "McCaull Wagon," which is becoming the most popular wagon (for business and pleasure) in the market. It is finished in the natural wood; hung on the celebrated Brewster Spring; has a shifting top and seats, and finished throughout in a first-class manner. It is light and stylish, and, by removing the back seat, can be used for light delivery purposes. Try a sample. Catalogue and Price-list sent on application.

ALL KINDS OF BODIES AND PARTS.

F. T. CLYMER, Wilmington, Del.

Send for Sample.



GEARS.

BREWSTER.

WILSON.

TIMKEN.

PLATFORM.

E. STERLING, Pres.

F. B. HAWLEY, Treas.

E. W. MARSH, Sec

ESTABLISHED 1843.

Spring Perch Co.

Manufacturers of

Fine Carriage Springs.

First quality Springs, of every style and pattern, made to order.

Side-bar Wagon Springs a Specialty,

INCLUDING AMONG OTHERS THE

J. B. Brewster, Timken, R. M. Stivers and Gosling patents.

Address

Spring Perch Co.,
BRIDGEPORT, CONN.

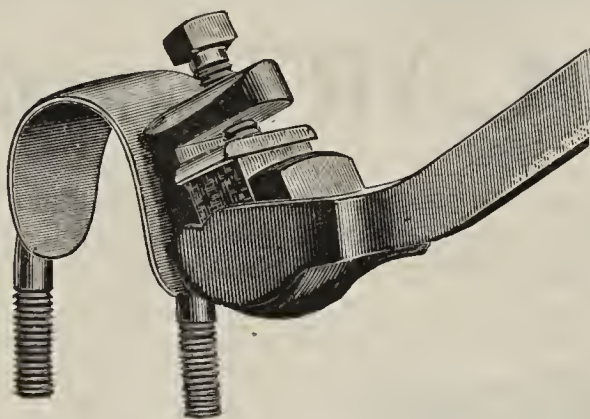
WALTER & MILLER,

MANUFACTURERS OF

Carriage Hardware,

FREMONT, OHIO.

WALTER'S IMPROVED
Buggy Draw-Clip and Couplings,
WITH FLANGED SHAFT EYE.



Finished forged complete, with
rubbers and screws, threaded
and nutted.

This Coupling has been in use for 5 years, has given the best satisfaction, and proven the best Coupling ever placed in the market.
SEND FOR LOW PRICES.

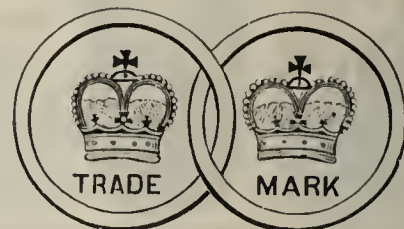
HOWARD M. DUBOIS

PROPRIETOR

Union Spoke and Rim Works,

Otter, below Front, Philadelphia, Pa.

Spokes,
Rims,
Hubs.



WHEELS,
including
Sarven Banded,
Kinney
and
Warner.

A long practical experience, a thorough knowledge of stock, careful personal selection of it, the use of improved machinery and methods in its manufacture, and prompt and particular attention to orders, warrants us in soliciting your patronage.

WOOD BENDING FOR CARRIAGE WORK A SPECIALTY.

Prices and information cordially given on application.

Excelsior Top Company

MANUFACTURERS OF

Rubber and Leather
Carriage

AND

Extension Tops,

Cushions, Backs, Dashes
and Shifting Rails,

Cortland, N. Y.



We are the largest manufacturers of Carriage Tops in the United States, and are prepared to give the Trade better goods, and at lowest prices, than any other manufacturer. Our goods are sold by all the principal Jobbers in Carriage Goods in the United States and Canada.

Catalogues and Price-list on application.

THE TIMKEN Patent Cross-Spring Side-Bar Vehicles ARE THE BEST IN THE WORLD.

They are now used by thousands with the greatest satisfaction.

I have licensed the following spring makers to manufacture and sell my Patent Spring, with Shackles and Royalty included: These companies manufacture my Patent Spring out of the best steel, oil-tempered, finished in first-class style, and fully warranted. Only grade made.

THE BRIDGEPORT SPRING Co., Bridgeport, Ct.

SPRING PERCH Co., Bridgeport, Ct.

TOMLINSON SPRING Co., Newark, N. J.

THE CHICAGO SPRING Co., Chicago, Ill.

D. W. SHULER, Amsterdam, N. Y.

CINCINNATI SPRING Co., Cincinnati, O.

FOREST CITY SPRING WORKS, Cleveland, O.

ST. LOUIS SPRING Co., St. Louis, Mo.

WOOD, SMITH & Co., Fort Plain, N. Y.

THE LINDEN SPRING Co., Boston, Mass.

WM. & HARVEY ROWLAND, Frankford, Phila.

HOUSTON HAY, Coshocton, O.

R. TOMLINSON'S SPRING AND AXLE WORKS, Bridgeport, Ct.

WENTWORTH SPRING AND AXLE Co., Gardiner, Maine.

PENN & LEE, Syracuse, N. Y.

KEYSTONE SPRING WORKS, Philadelphia, Pa.

CANTON SPRING Co., Canton, O.

LIGGETT SPRING AND AXLE Co., Limited, Pittsburgh, Pa.

CLEVELAND SPRING Co., Cleveland, O.

KALAMAZOO SPRING AND AXLE Co., Kalamazoo, Mich.

DETROIT STEEL AND SPRING WORKS, Detroit, Mich.

WILLIAM HARTY, Portsmouth.

SMITH, SUTTON & Co., Pittsburgh, Pa.

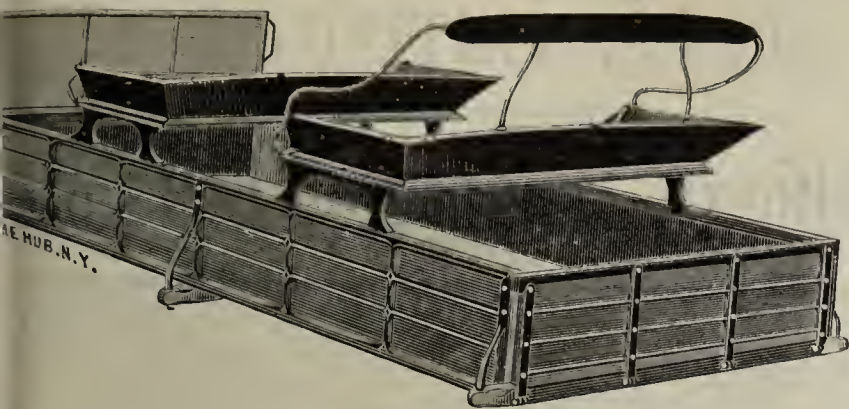
TUTHILL SPRING Co., Chicago, Ill.

Sales on my Patent Springs throughout the country increase largely each month, proving their claim—the most popular of any in the market.

Warning to the Public.

Again I caution the public against infringing my Patent Cross-Springs, as I shall protect them to the fullest extent of the law against all who undertake to infringe them.

HENRY TIMKEN, 1916 N. Broadway, St. Louis, Mo.



No. 6. Burr Patent Body, Three Panel.
 and for descriptive circular and prices on above and other styles of same make.

MANUFACTURED BY
 S. D. KIMBARK, CHICAGO.

S. D. KIMBARK,
 Michigan Ave. and Lake-street, - Chicago.
 Iron, Steel, Nails,
 Carriage, Wagon and Heavy Hardware,
 TOOLS AND MACHINES,
 CARRIAGE AND WAGON WOOD MATERIAL.
 Carriage Trimmings.

☞ Sole Western Agent for Empire Cross-Spring Gears.

*S. D. Kimbark & Co.
 Dayton, O.*

FACTURERS WHEELS, HUBS, SPOKES AND BOWS.
 ESTABLISHED 1847.

SULLIVAN & RAVEKES,

MANUFACTURERS AND JOBBERS

—Paints, Oils, Glass,—

White Lead, Zincs, Colors,

ALMADEN RED.

Agents for The Lawson Varnish Company.

AN FRANCISCO.

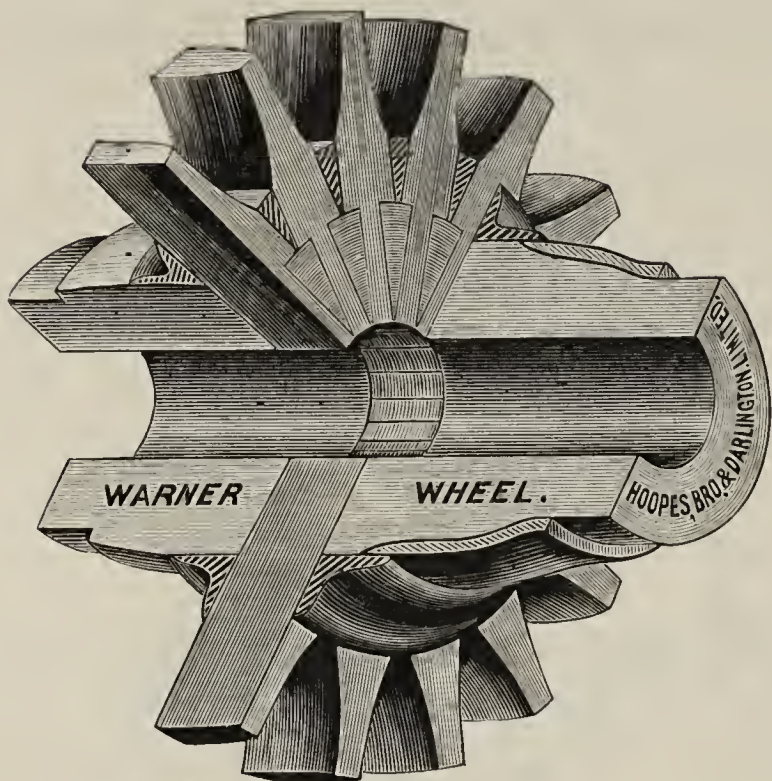
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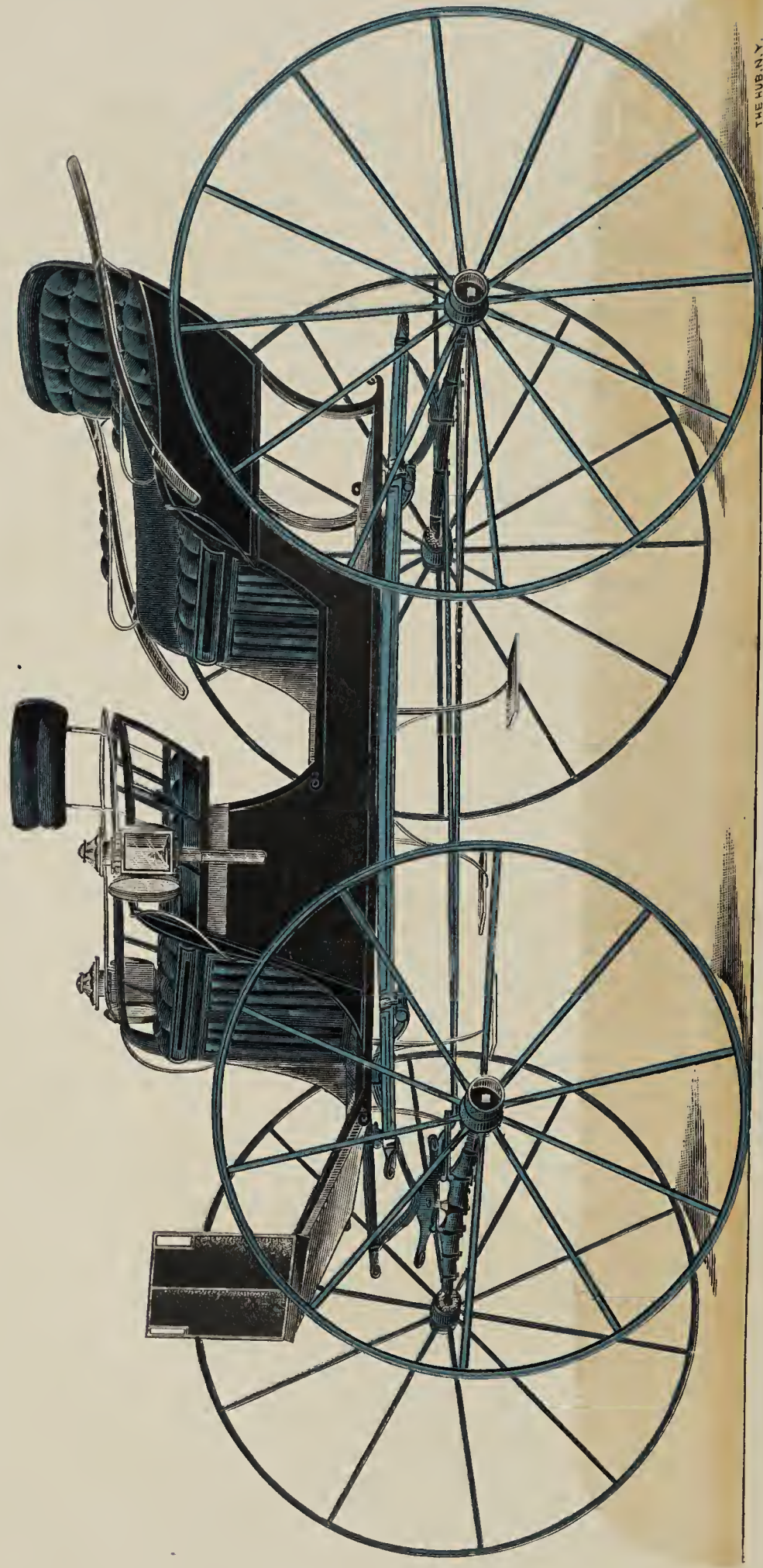
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COLOR PLATE NO. LVI. FOUR-PASSENGER OPEN PHAETON, WITH OGEE BACK.

SCALE, THREE-QUARTER INCH.

The Hub's

Fashion Plates: Winter Season, 1885.

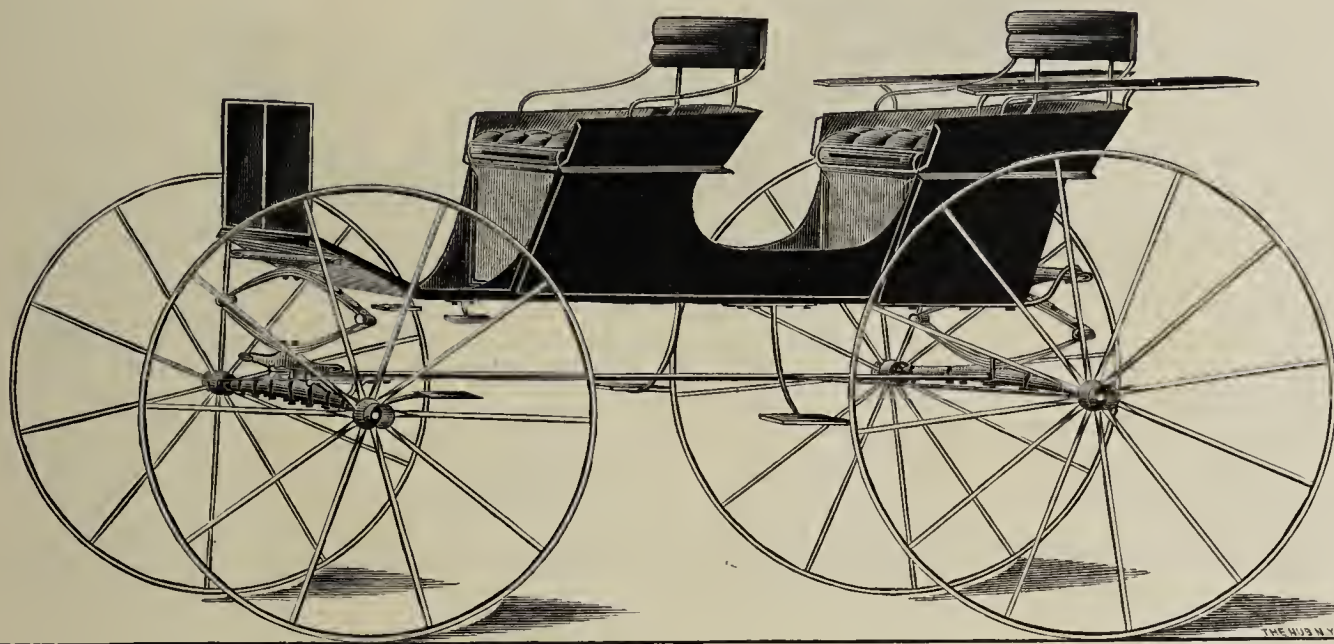


Plate No. 83. FOUR-PASSENGER OPEN WAGON, ON TWO SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 753.

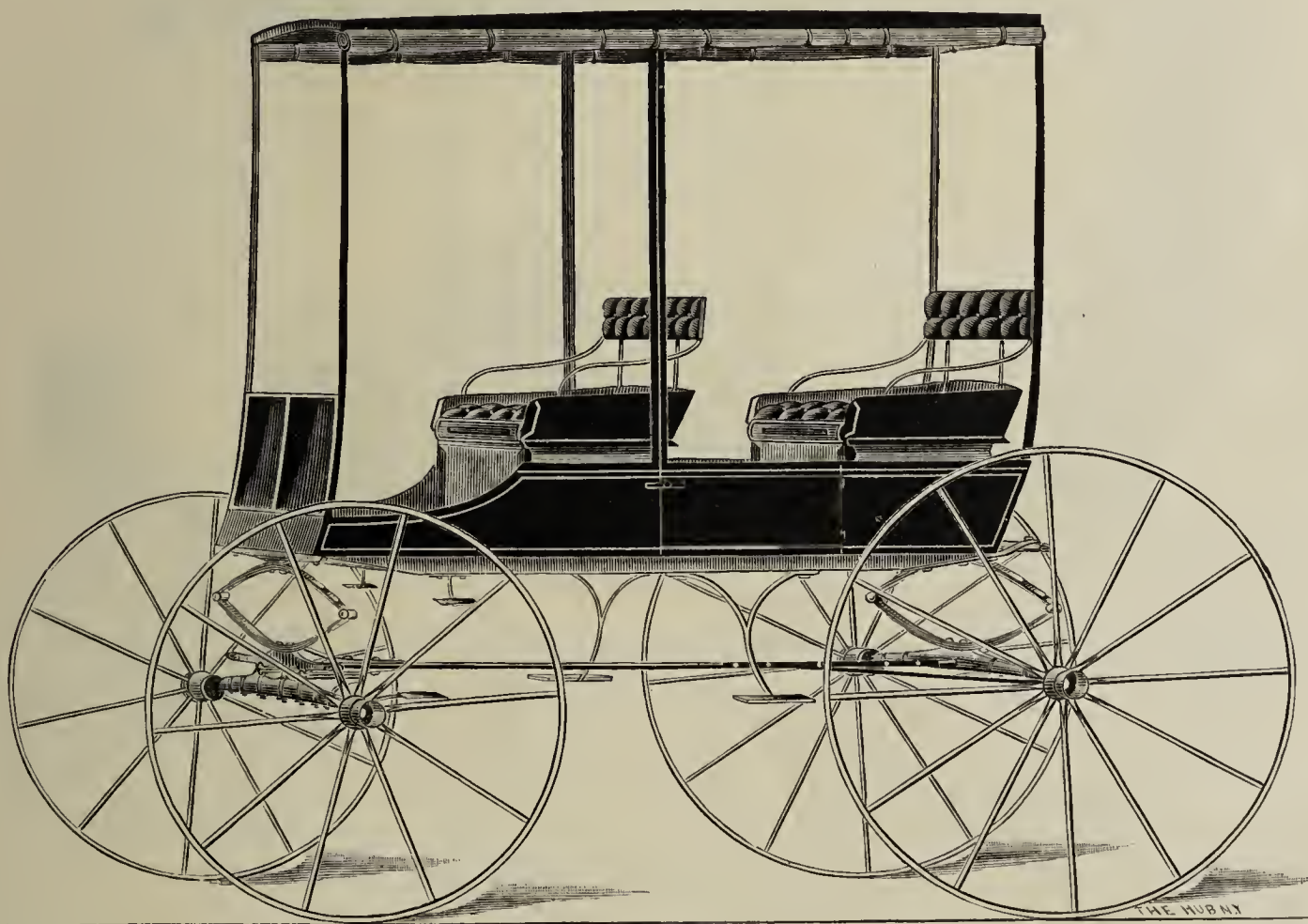


Plate No. 84. CUT-DOWN FRONT BEACH-WAGON, ON TWO SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 753.



Plate No. 85. EXTENSION-TOP PHAETON, ON SIDE-BARS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 754.

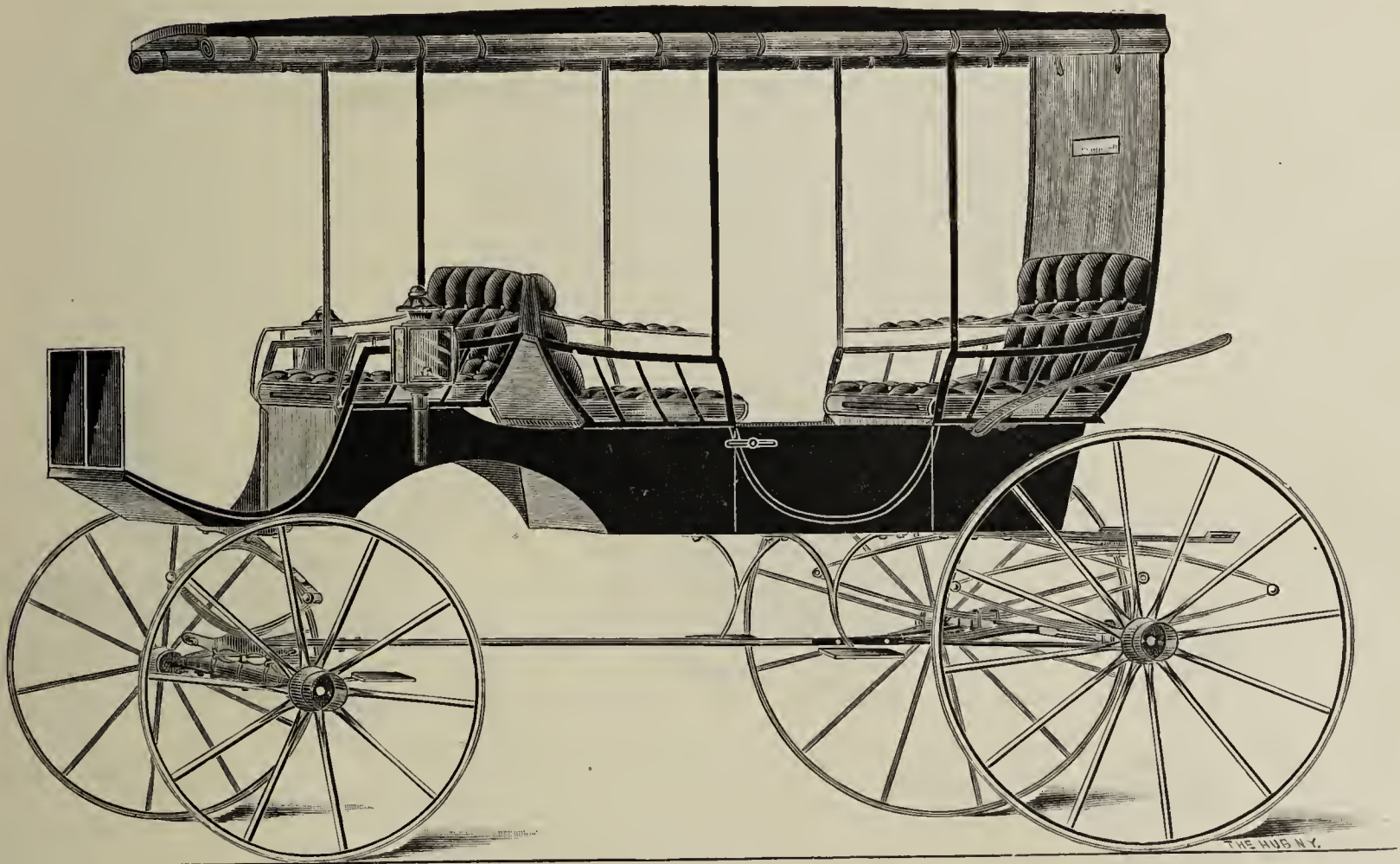


Plate No. 86. SIX-PASSENGER VIS-A-VIS PHAETON, ON THREE SPRINGS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 754.



Plate No. 87. NEW-YORK PARCEL CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 755.

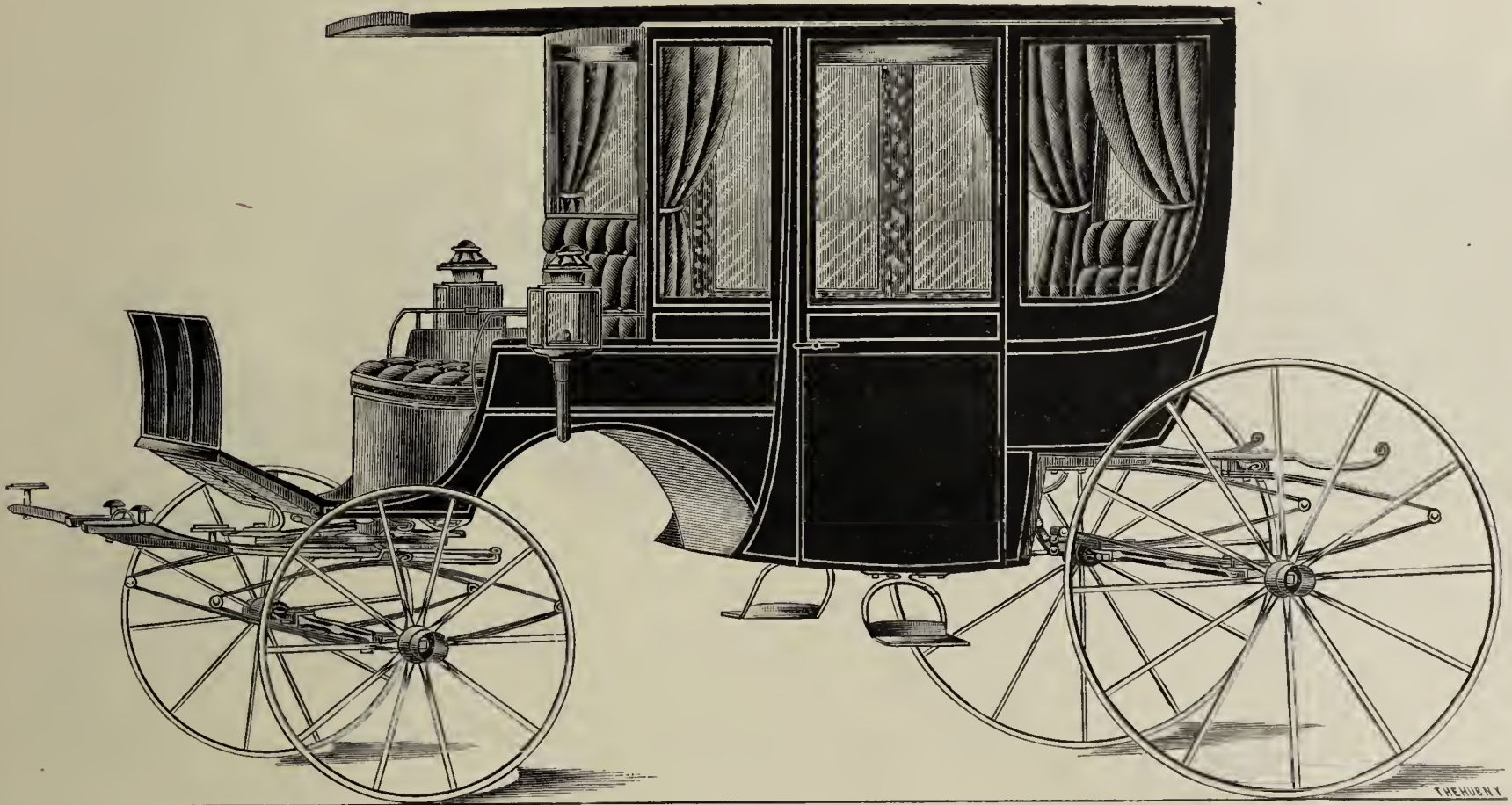


Plate No. 88. SIX-PASSENGER ROCKAWAY, WITH SHIFTING FRONT QUARTER.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 755.

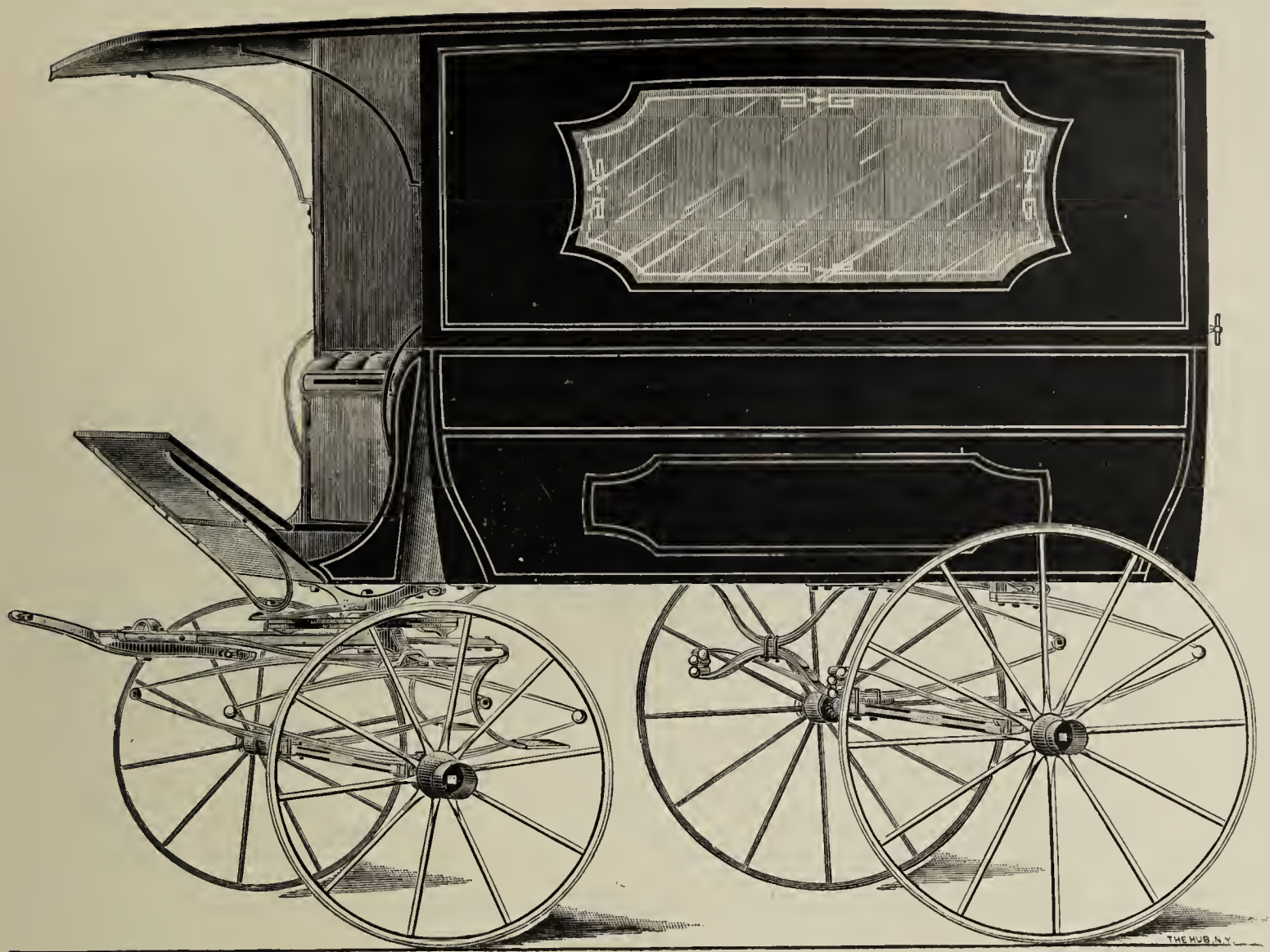


Plate No. 89. UNDERTAKERS' WAGON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 755.



Plate No. 90. LIGHT HEARSE, WITH RECTANGULAR GLASSES.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See mechanical description under "Draft-room" in this number, page 757; and also Working Draft and description of same, on pages 756-758.

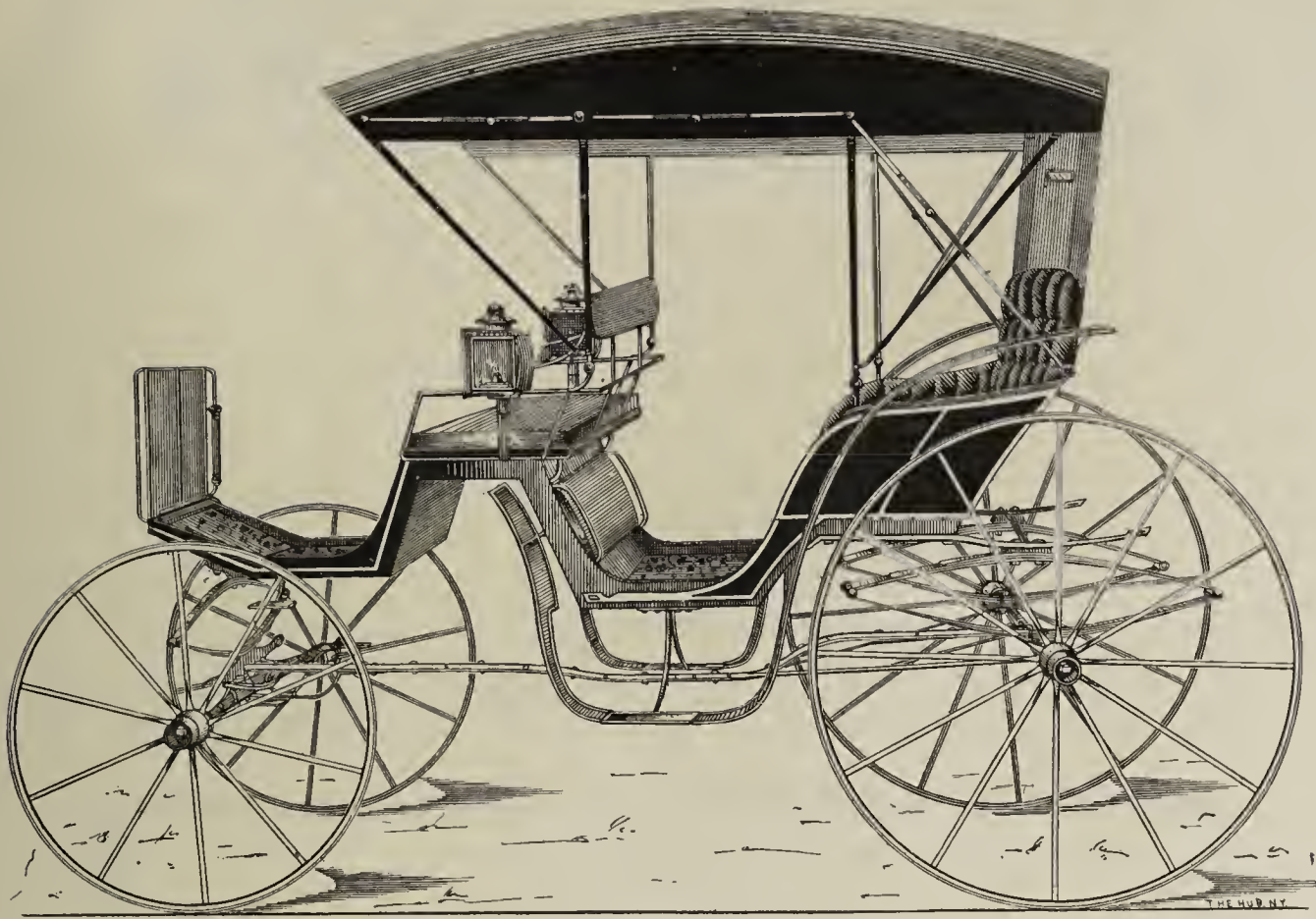


Plate No. 91. CLARKSON'S EXTENSION-TOP PHAETON, WITH AUXILIARY SEAT: First View,

SCALE, ONE-HALF INCH. (*Drawn and Engraved expressly for "The Hub."*)

See description in this number, page 775.

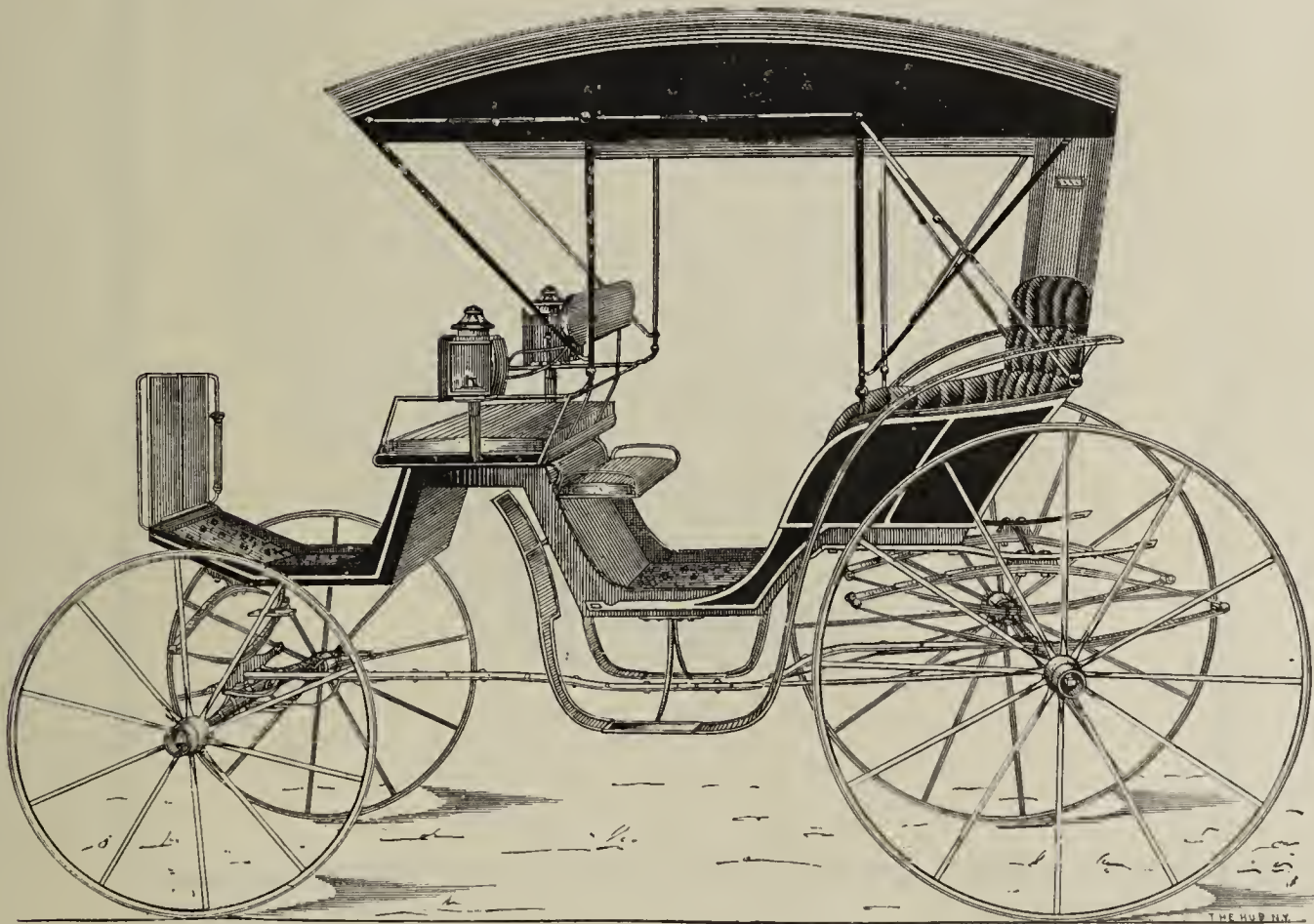


Plate No. 92. CLARKSON'S EXTENSION-TOP PHAETON, WITH AUXILIARY SEAT; Second View.

SCALE, ONE-HALF INCH. (*Drawn and Engraved expressly for "The Hub."*)

See description in this number, page 775.

The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, FEBRUARY 1, 1885.

No. 11.

THE LATE WILLIAM D. ROGERS, OF PHILADELPHIA.

(See Portrait accompanying.)

DIED suddenly, at his home in Philadelphia, Pa., at 8 o'clock on the evening of Saturday, January 3d, William D. Rogers, the eminent carriage-builder, aged 65 years and 6 months.

The event thus briefly chronicled will carry sorrow to all of our readers who ever knew Mr. Rogers, for he not only held a place in the foremost rank of American carriage-builders by reason of mechanical skill and business ability, but he was respected and esteemed and loved by all, for his kindness of heart, amiability and earnestness, and his scrupulous honesty both of purpose and act.

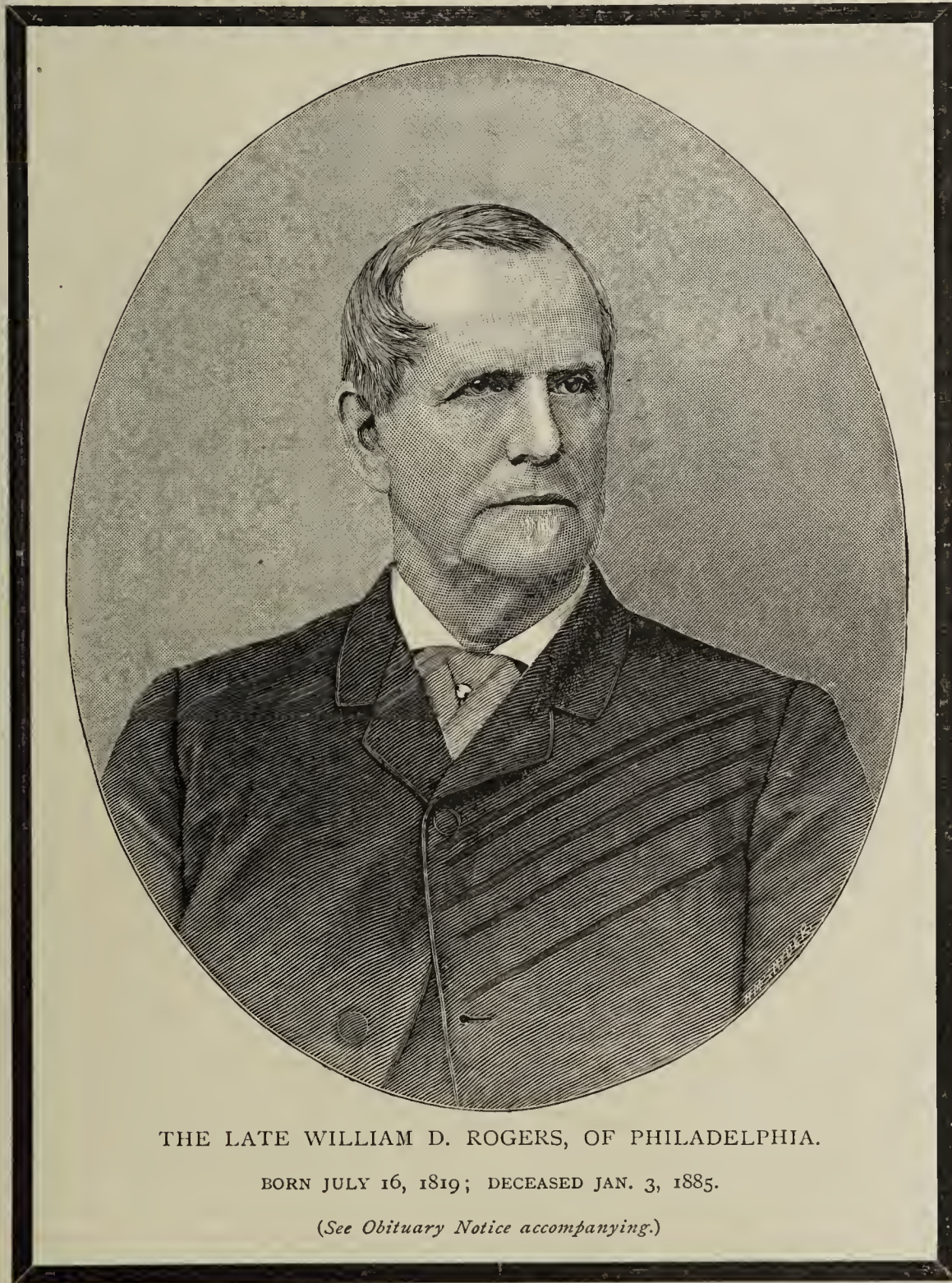
The story of Mr. Rogers' life and business career has already been given in detail in the October number of *The Hub*, 1882, and well deserves being re-read at this time by every young man connected with the carriage trade, for it offers many encouraging and helpful hints. The secret of his success was a simple one. He was a self-made man, and the youth of to-day whose opportunities seem least propitious, has all the chances that Mr. Rogers possessed at the start, and probably many more. Born in Baltimore, Md., in 1819, he was left fatherless in Philadelphia at the age of eleven, and at fifteen he began to shift for himself. He had neither money, nor education, nor influential friends to begin with, but he steadily gained all these as he went along, and he did this in spite of business reverses, and conflagrations and ill health, such as seldom fall to the lot of man.

The chief events of his earnest and hard-working life may be briefly epitomized as follows: At the age of fifteen he was apprenticed to John Carruthers, a Philadelphia carriage-maker, and faithfully served a full apprenticeship of seven years. The mechanical training which he thus secured was probably unsurpassed in thoroughness by that of any American carriage-builder of the

present day. As soon as he reached his majority he became a journeyman of the typical and old-fashioned sort, traveling from place to place, as opportunities for work were offered or made. For six years he was thus on the move, during which time he visited Saratoga Springs, N. Y., New-Haven, Conn., Boston, Lynn, West Amesbury and Springfield, Mass., Exeter, N. H., Madison, Ind., Huntsville, Ala., Nashville, Tenn., Louisville and Frankfort, Ky., New-Orleans, La., and Havana, Cuba. His knowledge of the

demands of the trade was thus broadened and deepened; and when, in 1846, he opened his first small shop in Philadelphia, and set twelve men to work, he was well equipped with the information requisite to assure success in the undertaking. Two years later he had one hundred hands at work on fine carriages. In the troublous times that accompanied the breaking out of the Rebellion, he was one of the host of manufacturers who were forced into bankruptcy, and with a debt of \$50,000 loaded upon him; but with courage and honesty seldom equaled, and never surpassed, he declined to avail himself of the benevolent provisions of the bankrupt law, and took upon himself and successfully fulfilled the task of paying off every dollar of this sum. In 1870 he purchased the celebrated Watson carriage factory, increased his force and working facilities, and became the acknowledged leader of the trade in Philadelphia, which position he gave national importance when, at the Centennial

Exhibition, he was awarded the first mention and highest honors in his class. Throughout his career, Mr. Rogers identified himself with every movement tending toward the development and progress of his trade. He was one of the organizers and founders of the Carriage Builders' National Association, and was for many years the Chairman of its Executive Committee. He was also one of the organizers of the Technical School for Carriage Draftsmen in this city, and a constant and generous contributor toward its support. His untimely death leaves a gap in the band of America's progressive and public-spirited carriage-builders which will not readily be filled.



THE LATE WILLIAM D. ROGERS, OF PHILADELPHIA.

BORN JULY 16, 1819; DECEASED JAN. 3, 1885.

(See Obituary Notice accompanying.)

THE HUB.

Founded in 1869, by Valentine & Company.

Devoted by the present publishers to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paintshop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

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DESCRIPTION OF TUCKER'S PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

(Designed by Mr. Frank Willard Tucker, with Messrs. Chauncey Thomas & Co., Nos. 101 and 103 Chestnut-street, Boston, Mass.)

(See Illustrations on Loose Sheet accompanying this number.)

In considering the subject of a design for a Physicians' Buggy or Phaeton, my first thoughts are directed to the conditions specially required by a physician in his vehicle; and the following seem to be the most necessary, namely: 1st, plenty of leg-room; 2d, good seat and head room; 3d, easy-riding qualities; 4th, ease of access; 5th, good box-room for blanket, weight, etc.; and 6th, strength and durability without great weight.

With the above conditions in view I look about me, curious to know what the majority of the physicians of my own city most favor, and I find that from 80 per cent. to 85 per cent., and possibly more, are using buggies of the Goddard pattern. This style of buggy no doubt fills more completely the above wants than any other; and I will therefore take the regular Goddard body, with some few modifications, as the basis of my drawing.

I very well know that this buggy is not generally in favor with carriage-makers and draftsmen outside of Boston and vicinity, but in this city it is unquestionably the favorite carriage of its class with the general public and especially with elderly people and physicians; and, in fact, it is just as much a part of Boston as if its spokes were driven into the "Universal Hub."

Under this body I will not place the regular Goddard carriage-part, but will substitute one originated by Chauncey Thomas, Esq., whose permission I have to use it. This carriage-part is quite long, the whole length being 6 ft. between centers of axles; and the body is suspended by long hanging-irons. The object of this is to gain space between the wheels, so that a person can alight or enter the body without cramping the front carriage about.

The wheels are high, being 3 ft. 10 in. and 4 ft. 2 in. This is of great advantage to the riding qualities of the vehicle, and also to its easy

draught, especially on country roads. The track is also made wide, 5 ft., to better suit average country roads, and also to avoid horse-car tracks; and although we have a wide track, we are enabled to make a short turn by setting the kingbolt 7 in. back of the center of the axle and passing through the perch. The front axle, which has a coach bed, rises in the center to meet the head-block and top circle, which is full. The bottom circle is kept in place by a stay passing under it and the perch, and dropping to meet the axle.

By causing the front wheel to turn short we are obliged to form the step in such a manner that it will extend around the back of the front wheel, and be on the outside of the wheel when the front carriage is cut around.

The shafts are separate, each having two eyes. This is of great convenience, both in the carriage-house, in harnessing, and in case of accident to the horse. The whiffletree is placed on the perch, the kingbolt also answering for a whiffletree bolt. The object of thus arranging the shafts and whiffletree is to bring the horse as near to the load as possible, thus lessening the draught and making a carriage which, with shafts and bar, would otherwise be very long, one of really ordinary length.

The body affords ample box-room, which is impossible in the case of a phaeton, unless we introduce an unsightly sunken bottom, which must totally destroy the lines of the carriage.

I will not enter into a minute description of the remaining parts of this buggy, as the drawings have been made to scale with great care, and are sufficiently accurate for all practical purposes. The following hints will suffice, I think.

The framing of the body is of ash, and the panels are made of whitewood. The rockers are screwed to the sills from the inside, and the standing pillars are framed to the sills. The seat and arm pieces are rabbeted to receive the panels, as is also the pillar, and their edges are finished with a broken ogee molding. The bottom is let into the rockers. Small moldings are introduced on the sides and back.

The principal dimensions are as follow: The front axle is $1\frac{1}{8} \times 7$ in., with coach bed; and the back axle is 1×7 in., with fantail bed. The front spring is 37 in. long, 8 in. open, $1\frac{1}{2}$ in. wide, 4 plates. Back spring, 36 in. long, $8\frac{1}{2}$ in. open, $1\frac{1}{2}$ in. wide, 4 plates. The perch is $2 \times 1\frac{1}{4}$ in., and ironed by $\frac{3}{8}$ in. beveled iron on the sides and bottom. The circle is made of $\frac{3}{4} \times \frac{3}{8}$ in. half-round iron. The wheels are 3 ft. 10 in. and 4 ft. 2 in. Hubs, 7×4 in. Spokes, 1 in. Rims, $1\frac{1}{4} \times 1\frac{1}{4}$ in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in., round-edge steel.

I would suggest the following finish as well suited for this vehicle. Body, black; and gear, green, striped with two lines of red (carmine glazed). Trimming, green Wülfing cloth, with spring back; and green buttons instead of tufts. For physicians' use I would advise a slip boot. Carpet, plain green Wilton. The shaft-tips and ends of axle-nuts only may be silver-plated. Respectfully submitted,

101 and 103 Chestnut-st.,
Boston, Mass.

FRANK WILLARD TUCKER,
with Chauncey Thomas & Co.

DESCRIPTIONS OF FASHION PLATES.

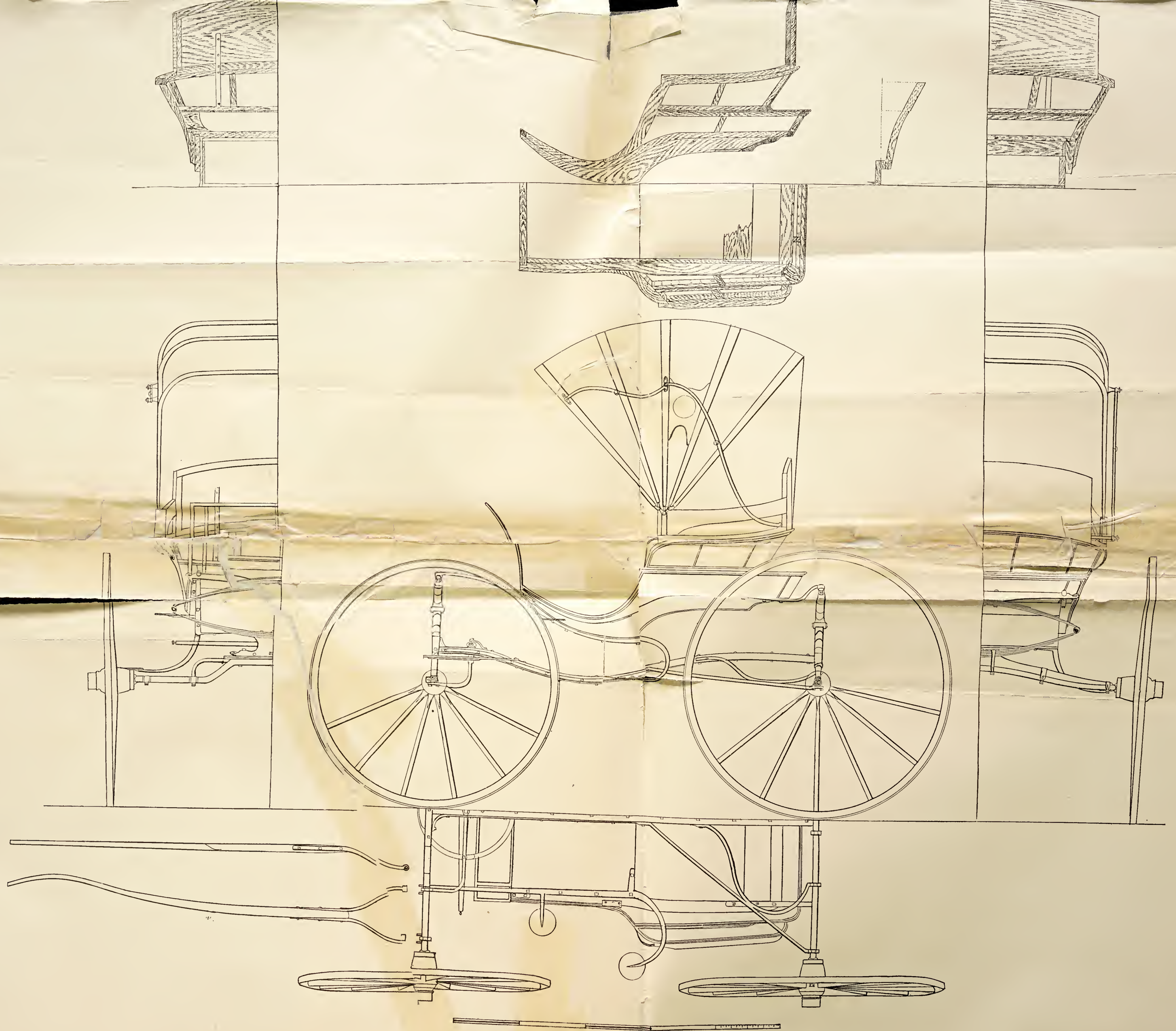
FOUR-PASSENGER OPEN PHAETON, WITH OGEE BACK.

(See Colored Plate No. LVI.)

THIS belongs to the same general class of vehicles as the Colored Plate in our January number, although numerous changes will be observed in the outlines and style of the two principal variations, consisting in the former having a top, while the present pattern represents an open vehicle; but a top can easily be applied to this one, if desired. In selecting the lighter grade of vehicles for our Colored Plates during the past two months we have been influenced by the wishes expressed by many subscribers. We are confident that a vehicle built after this Colored Plate will prove both attractive and salable.

The body is hung on side-bars, to bring it as near as possible to the ground. The bottomside is made of two pieces. The toe-board piece is framed to the main sill, which is made of the best body ash, and plated on the inside, that part of the plate in the open space being made half-round, and painted the same as the outside. The ogee pillar is made of bent wood, and framed into the bottomside; and we would recommend leaving the bottom sill somewhat heavy at this point, to allow necessary substance for framing the pillar and cross-bar. We would also recommend (as we have done before) having the inside plate form an angle at the cross-bar even with the inside or front face, which is rounded over on the outside similar to the sides. The angle is long enough to receive three screws. The corner-pillars extend as far as the top of the sides. The upper section of the back is made of 1 in. whitewood, and is fitted to the top of the top cross-rail, being fastened there by dowels and strainers. The sides at the rear seat are made of thick whitewood, and the seat, at the front end, projects 2 in. over the body.





PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.—Scale, one inch to the foot.

Designed by Mr. FRANK WILLARD TUCKER, with Messrs. Chauncey Thomas & Co., Nos. 101 and 103 Chestnut-street, Boston, Mass.

Awarded a Special Prize in the Class of Working Drawings, by the Jury on pages 172 and 173. These Report will be found in our June number, 1884.

The front molding of the rear seat on the body is level with the outside, and is finished off in a concavo-convex shape.

The front seat is a stick seat, and has square corners. The combination of panel and stick seat on a vehicle of this kind makes a pleasing contrast. We would advise, in case the front seat has square corners, that the distance between the front and rear seat be made a trifle longer than usual, as a contracted space between the two seats will then prove inconvenient for the dresses of ladies, which is of course obviated by the use of a round-cornered seat.

The stanhope-pillar is made of hard wood, and is fastened to the body first, and the seat is afterward fitted to the stanhope-pillar and then fastened to the body. The framework is made as light as possible, in order to reduce the weight of the body.

Dimensions.—Width of body on top, $33\frac{1}{2}$ in.; ditto bottom, $29\frac{1}{2}$ in.; ditto rear seat on top in front, $41\frac{1}{2}$ in.; ditto rear, $37\frac{1}{2}$ in.; ditto at the bottom in front, $37\frac{1}{2}$ in.; ditto front seat on top, 41 in.; and ditto bottom, $36\frac{1}{2}$ in. Rocker-plates, $1\frac{5}{8} \times \frac{5}{16}$ in., fastened with $1\frac{1}{2}$ in. No. 14 screws. Height of wheels in front, 3 ft. 6 in., and rear, 3 ft. 11 in., without the tire. Depth of rims, $1\frac{3}{16}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, 4 in. diameter. Front bands, $2\frac{3}{8}$ in., and back, 3 in., inside diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{16}$ in., round-edge steel.

The front end-spring is $33\frac{3}{4}$ in. long, between the outside holes, with $2\frac{1}{4}$ in. set over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first three No. 3, and the last No. 4 steel. The rear end-spring is of the same length, with $\frac{1}{4}$ in. more set. Width of steel, the same as on the front spring. Number of plates, four, namely: all No. 3 steel. The front body-spring is $33\frac{3}{4}$ in. long, from out to out, with 3 in. set over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, all No. 3 steel. The rear body-spring is of the same length as the front one, with $3\frac{1}{4}$ in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, four, namely: the first No. 2, and the others No. 3 steel. Axles, 1 in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body and moldings, black; and the rear seat, dark blue. The moldings are edged with a fine line of light blue. Gearing, blue, a shade lighter than the body, with two light stripes of black at a distance, and a fine line of light blue between these stripes. Trimming, blue cloth throughout. The sides of the rear seat are trimmed plain, but are padded. The rear back has a plain roll on top, and the rest is laid off in squares. The same figures are adapted for the cushion tops. The front lazy-back consists of two smooth rolls. The falls are divided into two spaces, and edged by raisers made of cloth, and the space between the raisers is filled with plaited work. Carpet, dark green, with light green figures. Mountings, silver.

FOUR-PASSENGER OPEN WAGON, ON TWO SPRINGS.

(See Fashion Plate No. 83.)

OPEN Wagons of this type are usually of simple and plain design, and this rule we have followed in the accompanying drawing. In its construction, one leading condition that we have kept constantly in mind is to reduce the cost as much as possible, and economy is suggested throughout. Machinery can be employed to advantage in the preparation of the framework, which can thereby be sufficiently advanced so as to require the body-maker merely to put the framework together, glue on the panels, etc. The body, as shown in our drawing, is suspended on two elliptic springs, which is the simplest and least costly method; but quite a number are nowadays hung on side-bars, or on three springs.

The difference in general appearance between a vehicle of this type gotten up on the cheaper plan and one constructed more elaborately is not very marked, although it will certainly be observable by a close examination, and the greatest contrast will usually be found in the painting and trimming. Here the builder must exercise his own judgment as to the quality of the work, remembering that an elegant painting and trimming, particularly on vehicles of the lighter class, where the latter is visible, will often make a marked difference in its selling price.

The seats project over the body about $1\frac{1}{2}$ in. The moldings at the front of the seats are of one piece, and fitted to the body and seats after the seats are screwed to the body. The moldings on the body are slightly rounded on the outside, and the moldings on the seat-frames are fluted.

The bottomsides are made of two pieces. The toe-board piece is framed to the long bottomside, and strengthened on the inside by a plate. The framework should be made as light as possible. The bottom sills can be made about $1\frac{3}{8} \times 1\frac{1}{2}$ in. There being no doors, the sizes of all the other pieces constituting the framework of the body can be made light, as follows: Uprights, $\frac{7}{8}$ in. thick, by $\frac{7}{8} \times 1\frac{1}{4}$ in. wide.; top cross-pieces of the body, $\frac{7}{8} \times 1\frac{3}{8}$ in.; rear corner blocks, $1\frac{3}{8}$ in.

square; seat-frame pieces, $\frac{1}{16}$ in. thick; width of end-pieces, $3\frac{1}{2}$ in.; width of rear cross-pieces, 5 in., and the front cross-pieces, $2\frac{1}{2}$ in. wide. The bottom-boards are $\frac{7}{8}$ in. thick, and the side and rear panels, $\frac{3}{8}$ in. The space in the body under the seat can be utilized for storing parcels, baskets, etc.

Dimensions.—Width of body on top, $32\frac{1}{2}$ in.; ditto bottom, 30 in.; ditto top of seat, 40 in.; and ditto bottom, $35\frac{1}{2}$ in. Height of front wheels, 3 ft. 7 in.; and rear, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{3}{16}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 14. Stagger of spokes, $\frac{5}{16}$ in. Hubs, 4 in. diameter. Front bands, $2\frac{3}{8}$ in., and back, $2\frac{7}{8}$ in., inside diameter. Tire, $1 \times \frac{3}{16}$ in., round-edge steel.

The front spring is elliptic, 37 in. long, with $8\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the other two No. 3 steel. The rear spring is elliptic, 37 in. long, from out to out, with 8 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 2, the next two No. 3, and the last two No. 4 steel. Holes apart on the top half for the front and rear springs, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axles, 1 in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body, black; and gear, dark blue, striped with two heavy round lines of deep orange. Trimming, blue cloth. The lazy-backs are trimmed with two rolls. The cushion tops are laid off in medium-size squares. The fronts of the cushions are edged with a seaming-lace valance, and have a raiser in the center about 1 in. wide. The falls are finished with one broad raiser at the edges, and divided into two halves. Carpet, blue, with small black figures. Mountings, brass.

CUT-DOWN FRONT BEACH-WAGON, ON TWO SPRINGS.

(See Fashion Plate No. 84.)

THE accompanying design represents a vehicle adapted to the same general purposes as the Four-passenger Standing-top Wagon illustrated in Fashion Plate No. 68 in the December number of *The Hub*. Wagons of this class meet with favor in all sections of the country, which is easily understood when we consider their adaptability to a great variety of uses, which makes them a favorite with people of small means, who are not able to keep a special carriage for every purpose. In the country this class of vehicles is especially favored, and specimens of great variety of design can always be found.

The body in the design here illustrated is plain, and does not involve the application of the "French rule" in its construction. The body is straight on the sides, but slightly inclined. A working draft for the side elevation of such a body is deemed unnecessary by the majority of carriage-makers, measurements of the different parts being thought quite sufficient; but, while we do not deny the possibility of building such a body without the aid of a side elevation and half end view, for the patterns of the front and rear corner-pillars could certainly be made without a draft, the question arises whether there will be any time saved by this omission. We think not. The time required to make the draft of such a body is not great; and this will be more than regained in building the body, as all the measurements of the different pieces can then be taken accurately and without delay.

The shape of the front corner-pillar is reversed from the usual method of having the curved side to the front. While the length of the body on the bottom is not thereby reduced, a shortening of several inches in the length of the top rail is secured. The seats of the body are movable, and rest on a rail glued against the side panel, and let into the standing-pillars at the door. The upright in front is framed into the body near the front end of the seat and at the rear corner-pillar.

The front door-pillar, or lock-pillar, as will be seen on the drawing, extends up to the bottom of the top rail. A cross-piece is lapped to the pillar the length of the width of the door. The mode of attaching this cross-piece of the door to the top rail is quite simple. Occasionally a bolt is put through the top rail before the roof is fastened, being made long enough to reach through the cross-piece of the door. The cross-piece is slipped on this bolt, and fastened with a nut. This is an inexpensive method, but we prefer the other method of having the bolt form a T with a plate. This plate is let into the top rail, and fastened by several screws. This latter method possesses marked advantages over the former in several respects. For instance, if it should become necessary to remove the bolt for some cause or other, the roof cover would have to be loosened if the first method were adopted, but this will not be necessary where the latter method is employed.

The body is hung on two springs, which lessens the cost of construction, and satisfactorily answers all requirements of the vehicle.

Dimensions.—Width of body on top, $39\frac{1}{2}$ in.; ditto bottom, 37 in.; ditto seat on top, 37 in.; and ditto bottom, $34\frac{1}{2}$ in. Height of wheels: front, 3 ft. 7 in.; and rear, 4 ft., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{1}{4}$ in. Number of spokes, 14. Stagger of spokes,

$\frac{5}{16}$ in. Hubs, $4\frac{1}{4}$ in. diameter. Front Bands, $2\frac{3}{4}$ in., and back, $3\frac{1}{4}$ in., inside diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{8}$ in., round-edge steel.

The front spring is elliptic, 37 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The rear spring is elliptic, 38 in. long, from out to out, with $10\frac{1}{4}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axle, $1\frac{1}{8}$ in., steel. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body and seats, black. Running-gear, black, striped with two medium lines of carmine. Trimming, brown cloth. The block pattern is used throughout for the backs and the cushion tops. The fronts of the cushions are edged with leather welts; and we also recommend edging the falls with a leather welt. A raiser, $\frac{3}{4}$ in. wide, made of brown cloth, is introduced $1\frac{3}{4}$ in. from the outer edges of the falls. Carpet, brown, with red figures. Mountings, silver.

EXTENSION-TOP PHAETON, ON SIDE-BARS.

(See Fashion Plate No. 85.)

THIS Extension-top Phaeton is moderate priced, the body being quite plain, but it will present a good appearance if well finished. The painting of a body of this description is always an important condition.

We have applied an open seat for the front, with an iron railing, which resembles the driver's-seat on heavy vehicles. The rear seat has solid sides and back, molded as shown on the drawing, and the sides and back are made of whitewood, and fastened to the outside of the seat-frame by glue and screws. The moldings are worked on. The rear seat projects over the outside of the body at the front end $1\frac{1}{2}$ in., and is contracted 1 in. on each side. The moldings on the body are glued on, and are slightly rounded on the outside. The valance on the front seat may be made of either leather or wood. Several firms of this city who make a specialty of livery work, have adopted the wooden valance for the driver's-seat, and claim that this method is not only less expensive, but more durable, and giving a better appearance than a leather valance will after the vehicle is repainted. The corners of the wooden valance should be canvased on the inside.

The sides of the body are cut down in the center to within 4 in. of the bottom edge of the body, thus permitting easy ingress and exit. The bottom sills are $1\frac{3}{8} \times 3$ in., and these should have a plate on the inside to help strengthen the body. The framework should be made as light as possible. The uprights, for instance, are $\frac{1}{16}$ in. thick, by $\frac{7}{8} \times 1\frac{1}{8}$ in. wide; and the frame-pieces for the seat must be not less than $\frac{1}{16}$ in. thick, to give good substance for fastening the sides and back of the rear seat. The width of the frame-pieces varies. The end pieces of the rear seat are 3 in. wide, while the rear piece is $4\frac{1}{2}$ in., and the front cross-piece $2\frac{1}{2}$ in. On the front seat the end-pieces are $3\frac{1}{4}$ in. wide. The rear cross-piece is $5\frac{1}{2}$ in., and the front cross-piece $3\frac{1}{2}$ in. wide. The thickness is the same as on the rear seat. Corner-posts are framed to the rear seat, and lapped to the end-pieces of the seat-frame. On the front end of the rear seat, the goose-neck iron extends to the top of the seat-frame, and forms an angle long enough to take three screws. On the sides, short stout screws are used. Wings are used on the rear seat, to prevent mud from being thrown into the body.

The body is hung on side-bars, and the J. B. Brewster, or other patented springs of similar character may be used, according to the preference of the builder. The step for entering the front of the vehicle is clipped under the axle. A single perch is used for the running-gear.

Dimensions.—Width of body on top, 34 in.; ditto bottom, 31 in.; ditto rear seat on top, at the front end, 41 in.; ditto bottom, 37 in.; ditto front seat on top, $37\frac{1}{2}$ in.; and ditto bottom, $35\frac{1}{2}$ in. Rocker-plates, $1\frac{3}{4} \times \frac{3}{8}$ in., fastened with $1\frac{1}{2}$ in. No. 16 screws. Height of wheels: front, 3 ft. 5 in., and rear, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{1}{4}$ in. Size of spokes, $1\frac{3}{16}$ in. Number of spokes, 14. Stagger of spokes, $\frac{1}{8}$ in. Hubs, $4\frac{1}{4}$ in. diameter. Front bands, $2\frac{3}{4}$ in.; and back, $3\frac{1}{4}$ in., inside diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $1 \times \frac{3}{8}$ in., round-edge steel.

The front end-spring is $35\frac{1}{4}$ in. long between outside holes, with $2\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. The rear spring is of the same length as the front end-spring, and has the same set. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the last three No. 3 steel. The front body-spring is $35\frac{1}{4}$ in. long, from out to out, with $3\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first No. 2, and the rest No. 3 steel. The rear body-spring is of the same length as the front one, with $3\frac{3}{4}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four,

namely: the first two No. 2, and the last two No. 3 steel. Axles, $1\frac{1}{8}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body and moldings, black, and the rear seat, dark green. Running-gear, dark green, striped with two stout lines of light green. Trimming, green cloth. The trimming on the rear seat follows the style now principally used on such work, i. e., the back is laid off in squares and pipes, while the cushion tops are laid off in squares. Plain falls are most appropriate for this vehicle. Carpet, green, matching the color of the cloth, with light green figures. Mountings, silver.

SIX-PASSENGER VIS-A-VIS PHAETON, ON THREE SPRINGS.

(See Fashion Plate No. 86.)

WE have already published several designs of six-passenger carriages intended for summer use, and as such vehicles are principally used in the country, we have suspended the present one on three springs, although this is not necessary, and four springs can readily be substituted, if preferred.

Vehicles of this class are admirably adapted for family use, being light, easily accessible, and affording comfortable seat-room. Under the middle and rear seats there is abundance of space for placing packages and baskets. The top is provided with leather curtains, and, in this drawing, is made stationary; but, if preferred, it can be made to shift. In the latter case the pillars should be made of iron, and very light. The mode of attaching these pillars to the body is similar to that employed on canopy-top phaetons. The top itself should be made as light as possible; and $1\frac{1}{8}$ in. thickness is sufficient for the top rail, with about $1\frac{5}{8}$ in. depth throughout, which will make the top rail concaved on the bottom face. We would make the curves $\frac{9}{16} \times 1\frac{1}{8}$ in., which is heavy enough. The roof boards should not be heavier than $\frac{1}{4}$ in., and the joints should be secured by blocks from the inside. For a stationary top, the different pieces comprising it should be made a trifle heavier than above indicated; and the pillars, which are then made of wood, are attached permanently to the seats. To make a substantial top the pillars should be plated on both top and bottom. The plates at the bottom end of the middle and front pillars form an angle for one bolt and screw. The front and middle pillars are strengthened on top by a T-plate; while, at the front and rear, corner-plates only are used.

On the body the door cuts through to the bottom edge. The molding is glued on. The door is made of framework, and a thin panel is glued over on the outside. The door is trimmed on the inside, and has a spring lock. The sides of the body are straight, but inclined.

The rockers are made heavy enough to receive a $2\frac{1}{2} \times \frac{3}{8}$ in. rocker-plate. We would not advise making the rockers lighter than $3\frac{1}{2} \times 1\frac{1}{2}$ in. At the neck-panel the rocker is made heavy enough to fill the space between the wheel-house and the neck-panel. All other pieces entering into the construction of the body should be made as light as possible.

All the seats show a combination of sticks and panel, which will give a pleasing appearance. All the seats project over the sides of the body $1\frac{5}{8}$ in. at the front, and $\frac{5}{8}$ in. at the back, thus giving the seats a 1-inch contraction on each side. The moldings at the door are $\frac{5}{16}$ in. thick throughout, and are not even with the outside of the seats. On the front seat, however, the molding is even with the outside, and is lightened toward the dash to the regular thickness, namely: $\frac{5}{16}$ in. The seat-frames are $\frac{7}{8}$ in. thick, and the end pieces are $3\frac{1}{2}$ in. wide. The rear frame-pieces of the front and rear seats are 5 in. wide. The rear frame-piece of the middle seat is 4 in., and all front frame-pieces are $2\frac{1}{2}$ in. wide. The rear corner-posts of the seats should be made heavy enough on the inside to leave ample substance after the groove has been put in. The groove and molding will be about $\frac{9}{16}$ in., and $1\frac{1}{8}$ in. will be sufficient for the corner-pillars, which can then be lightened to $\frac{3}{4}$ in. on the outside. The top rails and front pillars of the seats are $\frac{3}{4} \times \frac{7}{8}$ in. The top pillars do not come even with the outside of the seat, but set back $\frac{1}{4}$ in., thus emphasizing the shape of the seat. On the rear seat the upper back has a rail framed into the pillars at the proper height, and a panel is rabbeted in even with the pillars, the top seat-rail and the top rail of the back. The joint is covered by a light molding. For the upper seat, and for the backs of the middle and front seats, thick whitewood is used. The backs are fitted to the top seat-rail, and secured by dowels and three wooden strainers on the inside. The sticks for this job should be turned ones.

Dimensions.—Width of body on top, $35\frac{3}{4}$ in.; ditto bottom, $32\frac{3}{4}$ in.; ditto seat on top, 43 in.; and ditto bottom, $38\frac{1}{2}$ in. Rocker-plates, $2\frac{1}{2} \times \frac{3}{8}$ in., fastened with $1\frac{3}{4}$ in. Nos. 16 and 18 screws. Height of wheels: front, 3 ft. 1 in., and rear, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{7}{16}$ in. Size of spokes, $1\frac{3}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs: front, 5 in.; and rear, $5\frac{1}{4}$ in. diameter. Size of front bands for front hubs, $3\frac{1}{4}$ in.; and back, $3\frac{7}{8}$ in., inside diameter. Front bands for rear hubs, $3\frac{1}{2}$ in.; and back, $4\frac{1}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, 7 in.

The front spring is elliptic, 37 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first three No. 2, and the last two No. 3 steel. The rear springs are elliptic, 37 in. long, from out to out, with $9\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the last two No. 3 steel. Holes apart on top half, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. Axles, $1\frac{5}{16}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body and seats, black; and gear, dark green, striped with two heavy round lines of light green. Trimming, green morocco for the cushions and backs, and green cloth for the head-lining. The trimming for the back consists of a row of squares for the top, followed by a row of piping, and another row of squares on the bottom. For the cushion tops, squares only are used. The falls are divided into two sections by a center raiser, $1\frac{1}{2}$ in. wide. Carpet, plain green. Mountings, silver.

NEW-YORK PARCEL CART.

(See Fashion Plate No. 87.)

IN passing through any business thoroughfare of this city, an interested observer will notice among the vehicles adapted for business purposes a largely increased number of delivery carts, as compared with ten years ago. They are built in a great variety of styles as regards outline, and the painting shows special variety and attractiveness. The majority are painted in bright colors, but some are in more quiet colors, such as dark green and brown. The great ease with which such two-wheeled vehicles can be guided forms an essential point in their favor in streets crowded with conveyances of all descriptions, and this has no doubt aided very materially in their present popularity.

The bodies of such carts show marked variations at the front, some being finished with imitation coupé-pillars, while others have only a molding, and others again are finished as our drawing indicates. In the design illustrated the sides are paneled, and thereby divided into three spaces, the lower portion setting in about $\frac{1}{2}$ in. from the outside, while the upper section sets in about $\frac{5}{16}$ in., or the thickness of the molding. The sticks in the lower section are $\frac{1}{2}$ in. square, and finished in a manner similar to that adopted on express wagons. At the rear corner-pillar the panels are put into grooves. The corners are rounded over.

At the front the panels are glued to the pillar, and a molding is fastened to the outside. The light at the front part of the sides can either be made to drop or be made stationary, the former method being preferable. The top portions of the uprights and horizontal pieces of the framework at the inside are rounded off. The inside is painted in a light color and varnished. The majority of these carts are closed at the rear, but a door can be introduced if desired. In either case a light is placed at the rear.

The shafts are fastened at the front of the body as usual, a T being bolted to the body. The projecting part is for the reception of the shaft, and the shafts have a plate bolted to the bottom face, containing a socket for the reception of the projecting part of the T. At the rear it runs in a slide, which has several holes for regulating the height in front.

Dimensions.—Width of body on top, $42\frac{1}{2}$ in., and on bottom, $39\frac{1}{2}$ in. Height of wheels, 3 ft. 11 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $5\frac{3}{4}$ in. diameter. Front bands, $4\frac{1}{4}$ in., and back, $4\frac{7}{8}$ in., inside diameter. Length of front bands, $2\frac{1}{4}$ in. Length of hubs, $7\frac{1}{2}$ in. Tire, $1\frac{1}{4} \times \frac{3}{8}$ in.

The springs are 46 in. long, from out to out, with $6\frac{1}{2}$ in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first three No. 2, and the rest No. 3 steel. Axles, $1\frac{5}{16}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower panel of the body, dark green; and sticks, black. The sign or center panel is carmine, and the upper panel, black. The sign-panel is striped with gold and black, while the sticks on the lower panel are striped with fine lines of carmine and yellow. The lettering on the upper panel is in gold. Gearing, carmine, with a medium stripe of black in the center, and two medium lines of black at a distance. Trimming, black enamel leather for the cushion and fall. Mountings, silver.

SIX-PASSENGER ROCKAWAY, WITH SHIFTING FRONT QUARTER.

(See Fashion Plate No. 88.)

THIS Rockaway belongs to the lighter class; and its light appearance is increased by the omission of the usual English quarter in front. Six-passenger Rockaways with double English quarters (or, they are generally designated "Berlin Rockaways") are at present popular, in spite of their heavy appearance and enhanced cost. The additional cost, it

should be added, is caused principally by increased labor in constructing the body, and also in the trimming; but the style here represented is apparently meeting with equal favor, and many customers seem to prefer this on account of its lighter appearance, to say nothing of its decreased cost.

The front quarter, or the space from the coupé-pillar to the corner-pillar in front, is shortened as much as possible, but not enough to impair the seat-room. The front-quarter frame is here made stationary, but can be made movable, if preferred, and the latter is preferred by many customers, especially in Southern latitudes. The front panel sets in from the coupé-pillar about $\frac{5}{16}$ in., or the thickness of the molding. The front panel projects at the front over the rocker about $\frac{7}{8}$ in. The bottom edge of the wheel-house is molded; and the front molding, which projects out from the rocker at the bottom face of the front panel about $1\frac{5}{16}$ in., is worked down to $\frac{5}{16}$ in. at the front. One glass-frame is used for the front.

The front springs are clipped under the axle, and the lower bed is swept downward to obtain the necessary space for the fifth-wheel and the top bed.

Dimensions.—Width of body at the hinge-pillar, 50 in.; ditto lock-pillar, $47\frac{1}{2}$ in.; ditto at the rear, 42 in.; ditto front, 42 in.; and ditto dash, 32 in. Turn-under, $3\frac{1}{2}$ in. Rocker-plates, $2\frac{3}{4} \times \frac{1}{2}$ in., fastened with $1\frac{3}{4}$ in. Nos. 14, 16 and 18 screws. Height of wheels: front, 2 ft. 10 in.; and rear, 3 ft. 11 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{7}{16}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $5\frac{1}{2}$ in. diameter. Front bands, $3\frac{7}{8}$ in., and back, $4\frac{3}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, 7 in. Tire, $1\frac{1}{8} \times \frac{5}{16}$ in., round-edge steel.

The front springs are elliptic, 38 in. long, from out to out, with 10 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first two No. 2, and the next three No. 3 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{5}{16}$ in. The rear springs are platform. The side-springs are 41 in. long, from out to out, with 11 in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the next two No. 3 steel. Holes apart on top, $3\frac{1}{2}$ in. Size of holes, $\frac{5}{16}$ in. The cross-spring is $39\frac{1}{2}$ in., from center to center, with 5 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, four, namely: the first two No. 2, and the next two No. 3 steel. Axles, $1\frac{5}{16}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower quarters, doors and lower back panel, dark green; and moldings, upper quarters, upper back panel, and the rest of the body, black. The moldings are striped with a fine line of light green. Gearing, dark green, with two narrow stripes of black at a distance, and a medium line of light green between the two narrow stripes. Trimming, green cloth for the interior of the body, and green morocco for the driver's-seat. The upholstery for the seat-backs is laid off with a row of squares on top, followed by a row of piping in the center, and finished at the bottom with another row of squares. Broad-lace of a plain pattern is used for the front of the cushions around the top and doors. The door is squabbed between the broad-lace, and finished with five tufts. The tufts are of the same color as the cloth. No falls are used, but the lining boards are covered with carpet. On the driver's-seat, the back and top of the cushion are laid off in medium-sized squares; and the fall is divided into two sections, having a broad riser around the edge, and each section has three plaits between the risers. Carpet, dark green, with small light green figures. Mountings, silver.

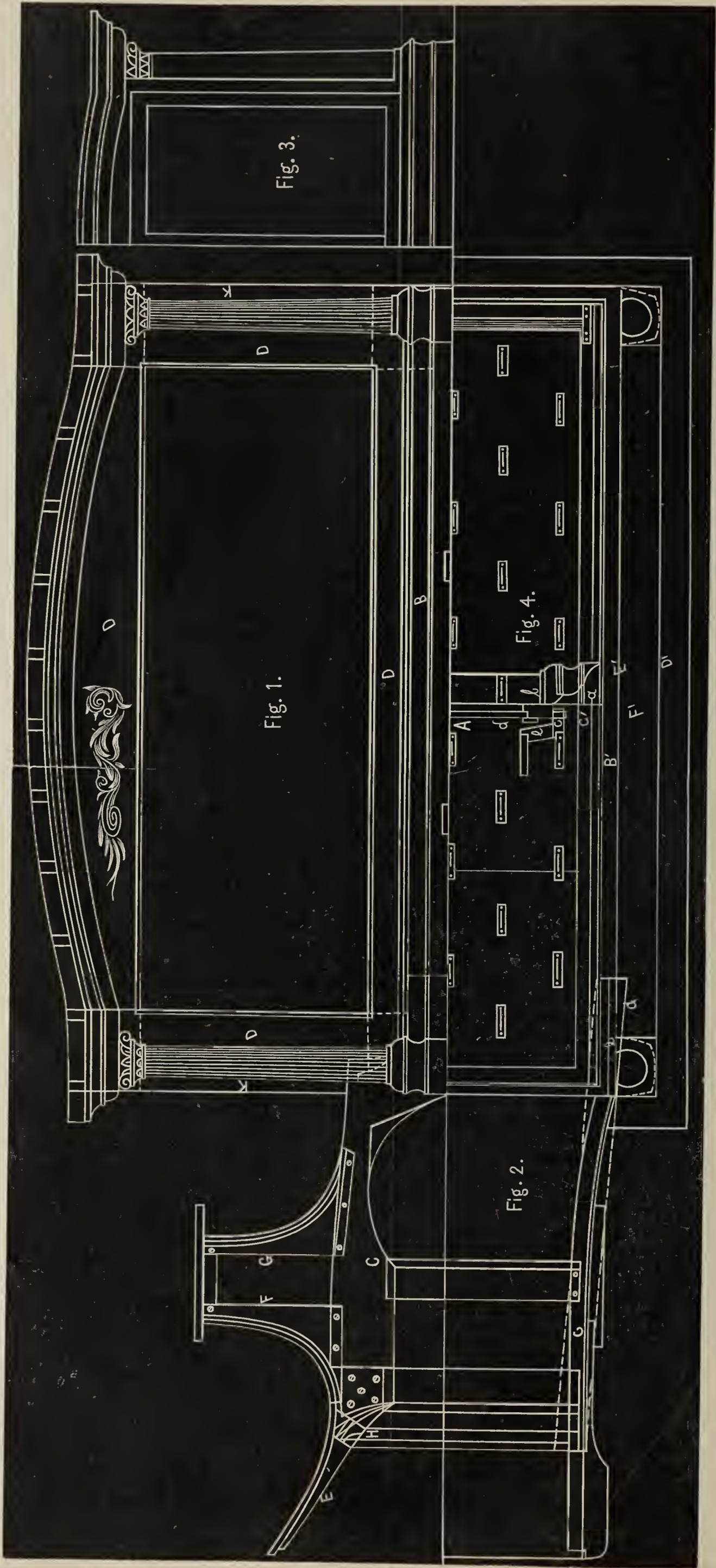
UNDERTAKERS' WAGON.

(See Fashion Plate No. 89.)

UNDERTAKERS' WAGONS are now built in a great variety of forms, some of which are extremely plain, and others elaborately molded. The front end of the body is finished in many styles. The bottom sill usually forms a bracket at the front end, similar to that on Coupé-Rockaways and Extension-top Phaetons, or it may be made as illustrated in the accompanying drawing. An imitation stanhope-pillar will add materially to the appearance.

The moldings may be applied in a great variety of styles. In many instances they follow the outlines of the body, or the vertical moldings on the lower section of the body are C-shaped; or, as in this case, they may incline to an ogee sweep. The space between the moldings, or between the bottom and top panels, is either left plain, or molded as per drawing.

Such wagons are often subjected to hard usage, and should therefore be made strong and serviceable. The wheels, springs and axles should be of the very best materials, and the work of the body-maker should be first-class, particularly as regards the framework, which should not only be made of the best timber, but be substantially put together. Two panels are used for each side, the joint being covered by the center molding. The back is divided into two sections, the lower half having



WORKING DRAFT OF LIGHT HEARSE, WITH RECTANGULAR GLASSES.—SCALE, THREE-QUARTER INCH.

(See Fashion Plate No. 99, Mechanical Description of same on page 757, and description of this Working Draft on opposite page.)

two doors opening outwardly, while the upper section consists of a single door, with pivots, which may be turned upward when required. The driver's-seat is sufficiently elevated to allow a coffin or ice-box to be placed beneath it.

Dimensions.—Width of body, 4 ft., from out to out. Height of wheels: front, 3 ft. 3 in.; and rear, 4 ft., without the tire. Depth of rims, $1\frac{3}{4}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $6\frac{1}{2}$ in. diameter. Front bands, $4\frac{1}{2}$ in., and back, $5\frac{3}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, 8 in. Tire, $1\frac{3}{8} \times \frac{7}{16}$ in., round-edge steel.

The front springs are elliptic, 42 in. long, from out to out, with 12 in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: three No. 2, and two No. 3 steel. Holes apart on the top half, 4 in. Size of holes, $\frac{3}{8}$ in. The rear springs are platform. The side-springs are 42 in. long, with $14\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: four No. 2, and one No. 3 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{3}{8}$ in. The cross-spring is 43 in. long, from center to center, with 6 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, all No. 2 steel. Axles, $1\frac{3}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of both body and running-gear, black, with no striping. Trimming, black enameled leather. Mountings, silver.

LIGHT HEARSE, WITH RECTANGULAR GLASSES.

(See Fashion Plate No. 90, and also Working Draft of Body and description of same, pages 756 and 757.)

THE building of Hearses as a specialty is confined to a few well-known firms, but it frequently happens that the local carriage manufacturer is called upon to construct a Hearse for some undertaker who is a regular customer, and we therefore make it a rule to publish at least one design of a Hearse in each volume. Our last one, presented in the September number, 1883, was of an elaborate pattern, while the present drawing represents a very plain style, the only ornamental portions being the fluted columns at the corners, which can easily be omitted if preferred.

The present style in hearse lamps demands that they should be of considerable height, and more or less elaborate, which, however, is regulated to some extent by the price paid for the job, the high-priced and elaborate Hearse naturally requiring more highly finished and more highly ornamental lamps, trimmings, mountings and finish. The drapery is made interchangeable. Some Hearses are furnished with two complete sets of draperies, one being of black material, and the other of white. In making up the drapery, the trimmer can display his taste to great advantage in making up the folds, arranging the tassels, etc.

A working draft of this same Hearse appears on page 756, in this number, showing the proper way to build the body; and in that connection the dimensions of the body will be found in detail.

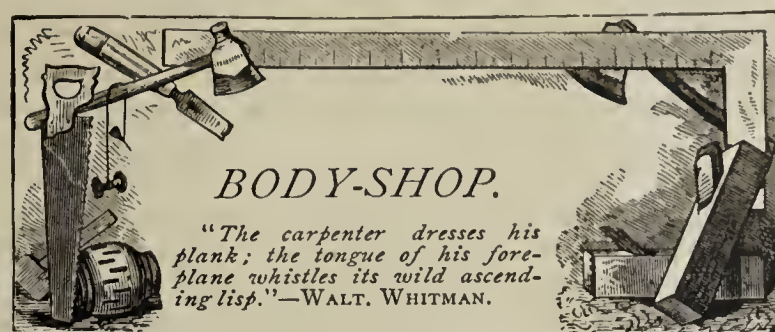
Dimensions of Gearing.—Height of wheels: front, 3 ft. 4 in.; and rear, 4 ft., without the tire. Depth of rims, $1\frac{5}{8}$ in. Size of spokes, $1\frac{9}{16}$ in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, $6\frac{1}{2}$ in. diameter. Front bands, $4\frac{1}{2}$ in.; and back, $5\frac{3}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, 8 in. Tire, $1\frac{1}{2} \times \frac{1}{2}$ in., round-edge steel.

The front springs are elliptic, 39 in. long, with $11\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first three No. 2, and the other two No. 3 steel. Holes apart on the top half, 4 in. Size of holes, $\frac{3}{8}$ in. The rear springs are platform. The side-springs are 42 in. long, with $10\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first three No. 2, and the other two No. 3 steel. Holes apart on the top half, $3\frac{3}{4}$ in. Size of holes, $\frac{3}{8}$ in. The cross-spring is $36\frac{1}{4}$ in. long, from center to center, with 6 in. set over all. Width of steel, $1\frac{3}{4}$ in. Number of plates, five, namely: the first four No. 2, and the last No. 3 steel. Axles, $1\frac{7}{8}$ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of body and gearing, black. Trimming, black cloth. Mountings, silver.

AMENITIES OF STREET-RAILWAY TRAVEL.

CAR No. 18 is going up-town crowded on Saturday afternoon, when a young man on the platform pulls the strap for a lady who wishes to get off. "Let go that bell, you blankety, blank, blank," screams the conductor, from the inside of the car. As the torrent of profanity and indecency seems to be going on indefinitely, a passenger whose ear happens to be close to the conductor's mouth threatens to report him if he does not stop swearing. The result, of course, is to divert the discharge upon himself. "Who cares for you, blank, blank you!" yells the enraged functionary. "I'm a managing this car, and you can't manage me, — — —!" The passenger gets off.—*N. Y. Tribune.*



WORKING DRAFT OF LIGHT HEARSE, WITH RECTANGULAR GLASSES.

(See Working Draft on opposite page; also Fashion Plate No. 90, and Mechanical Description of latter on page 757.)

IN the style and finish of its Hearses this country is unexcelled and the variety of designs is remarkable. Some years ago the oval Hearse was the favored style; then fashion drifted for a while, after which the Hearse with octagon side-glasses took the lead; and then straight moldings at the corners of the side glasses gave way to curved moldings. All the above-named bodies were supplied with circular glasses at the front and rear; but during the past few years nearly all the newest and finest patterns have been made with square bodies, which we consider greatly preferable, as they can be shortened considerably.

The body represented in the accompanying working draft has a straight front and rear, and is practically identical with the one shown in connection with Fashion Plate No. 90, in this number, although several minor changes are here introduced, which, however, do not alter the general character of the whole. This body, at first sight, may appear quite elaborate, but our description will show that its construction is not difficult. The most trying part for those unacquainted with such work will consist in working out the moldings, especially if the shop is located in a small town in the interior, with no establishment near at hand having a molding machine. Small shops in the cities are better situated in this respect by being able to have the moldings and other pieces gotten out by the aid of machinery, as at least one establishment doing such work is sure to be found in any city of note.

Our draft is divided, as usual, into four parts, namely: Fig. 1 represents the side elevation; Fig. 2, the ground plan; Fig. 3, the half back view, and Fig. 4, a sectional or end view of the bottom molding, corner-pillar, bottom sill, and the end view of the mound.

The dimensions of this body are as follows: Width of body on top, from outside to outside of molding, 4 ft. 6 in.; ditto bottom, 4 ft.; and ditto boot, 32 in. Rocker-plates, $3 \times \frac{1}{2}$ in., fastened with 2 in. No. 18 screws.

The thicknesses of the principal pieces are as follows: The long bottom sill B is 2 in. thick. The boot-rocker C requires 3 in. ash, having a thickness of 2 in. after being worked out. The frame-pieces D D D D are $1\frac{1}{8}$ in. thick, and can be made of whitewood. The toe-board bracket E will require $1\frac{3}{4}$ in. ash. The front boot-pillar F, is $\frac{7}{8}$ in.; and the rear boot-pillar G, $1\frac{7}{8}$ in. thick. The door-pieces are $1\frac{7}{8} \times 1\frac{1}{2}$ in. The rear cross-bar is 2 in. thick, and the full height of the bottom sills. All the other cross-bars are $1 \times 3\frac{1}{2}$ in. The pillars K K can be made of whitewood to avoid unnecessary weight. Little difficulty will be encountered in dressing off the different pieces. All are dressed by the square. The only piece that is contracted is the boot-rocker C; see C', Fig. 2.

We will now describe the framing of the different parts entering into the construction of this body.

The toe-board bracket E is halved to the boot-rocker. The cross-bar H is then mortised into the combined boot-rocker and the toe-board bracket.

The panel which covers rocker C is not even with the outside of the toe-board bracket in front, but projects over, and the end of the panel is shaped off as per drawing, Fig. 1. The panel and the molding will form an offset, making a good finish. The boot-panel sets in from the outside of the rocker $\frac{7}{8}$ in., and is grooved into the same. The front-pillar F is $\frac{7}{8}$ in. thick, and is mortised into the rocker G. The boot-panel is glued over the pillar, and the molding is fitted afterward. This molding should be made of hard wood, $1\frac{5}{8}$ in. thick.

The rear boot-pillar G is framed even with the outside of the rocker B, and the boot-panel is put into a groove. It will be noticed that the molding of the rear back-pillar forms a feather-edge at the connection with the rocker B. We would therefore advise, in order to prevent breaking the edge while framing and fitting, that the woodworker make the shoulder as indicated on the drawing, after the pillar has been fitted and glued, which should be done before the side panel is glued to rocker B. The projecting part is worked off carefully to the shape of the top face of the rocker B, and the panel is then fitted to the shoulder of the pillar.

The boot-rocker C is lapped to the rocker B. The lap on rocker B can be gauged off; while, in the case of rocker C, it has to be pricked off. The difference between the front and rear end of the splice is to be found between lines *a* and *b*, Fig. 2. The outside joint of the lap will be at the rear end, being hidden there completely by the molding.

The frame-pieces D D D D are lapped together, and the rabbet for the glass is worked from the inside to sufficient depth to bring the glass even with the inside of the frame. Extra moldings are then screwed to the inside of the frame to keep the glass in its place.

The bottom frame-piece D extends $1\frac{1}{4}$ in. below the top face of the bottom sill B. The fastening of the bottom frame-piece D to the bottom sill B is accomplished in the following manner: A rabbet is worked on from the outside of the piece D, $1\frac{1}{4}$ in. wide by $\frac{5}{8}$ in. deep. A rabbet of the same width is then worked on the bottom sill B, from the inside, of the same width and deep enough to bring frame-piece D even with the outside of the bottom sill B. This will leave a shoulder on which to rest the supporting piece for the mound C', Fig. 2. The glass-frame D is fastened to the bottom sill by screws and glue. The screws are inserted from the inside. The piece *c*, Fig. 4, is also fastened to the frame-piece D by screws and glue. The screws are inserted from the outside of the bottom sill B. Corner-plates are fastened at intervals against bottom sill B, and the mound supports C', in order to secure additional strength. The center part of the pillars is turned, and the top and bottom parts are square. These pillars are either made of three pieces, or in one piece. In the first case, the center or turned portion is either lapped to the top and bottom sections of the pillars from the inside, or a dowel is inserted in the top and bottom ends of the center portions of the pillars K K. The sides of the pillars facing the body are flattened off, to gain a surface for the pillars to rest against the body, or rather the frame-pieces D D D D and the bottom sill B.

The pillars K K are secured to the glass-frame pieces and bottom sill by glue and screws. The screws are inserted from the inside. It will be observed that there is a vacant space between the inside of the top molding and the outside of the glass-frame. See lines D' and E', Fig. 2. This space is intended to be filled up with whitewood, worked out the same shape as the heavy molding. This filling-up piece F' is fastened to the top glass-frame piece D, by screws entered from the inside. To secure the piece F' to the top of the pillar K more firmly, two dowels are inserted in the top end of the pillar. The piece F' is fastened to the pillars and frame-piece D simultaneously.

The top molding is made of two pieces. Each piece is finished separately. The outside molding is then glued to the inner one, and the whole is then glued to the body. Care must be taken to have the moldings high enough to allow for the bevel caused by the curves. The half-round molding is nailed on after the canvas is put on the top.

The door at the rear reaches to the bottom of the body. The lock is fastened at the bottom cross-piece of the door. The rear cross-bar is lapped to the sills, and fastened by screws. We would advise having the rocker-plate form an angle at the rear cross-bar, for greater strength.

Fig. 3, the half back view, also represents the end view, and the explanation given in connection with the latter, just below, will answer for this drawing as well.

Fig. 4 shows an end view of the different pieces above mentioned, including *a*, the molding between the pillars K K; *b*, the pillar; *c*, the piece for the mound to rest on; and *e* the mound. The mound is closed on top by a board $\frac{3}{4}$ in. thick, made of either ash or poplar, which is rabbeted into the side-pieces of the mound. A wooden roller is let in at the rear end, extending its entire width; and numerous small rollers are let in at intervals, as indicated on Fig. 2. The top piece of the mound is covered with cloth; and the rollers, which are silver-plated, are screwed on top by silver-plated screws.

If the outside appearance of the pillars K K at the bottom end or pedestal is considered too heavy, they can be lightened as indicated by the dotted lines on Fig. 2.

All carvings on the top of the pillars and top frame-pieces can be dispensed with if preferred, thereby materially reducing the labor and cost.

ALBERT KEHRL.

HOW TO FRAME THE FRONT STANDING-PILLAR OF A HEAVY JOB.

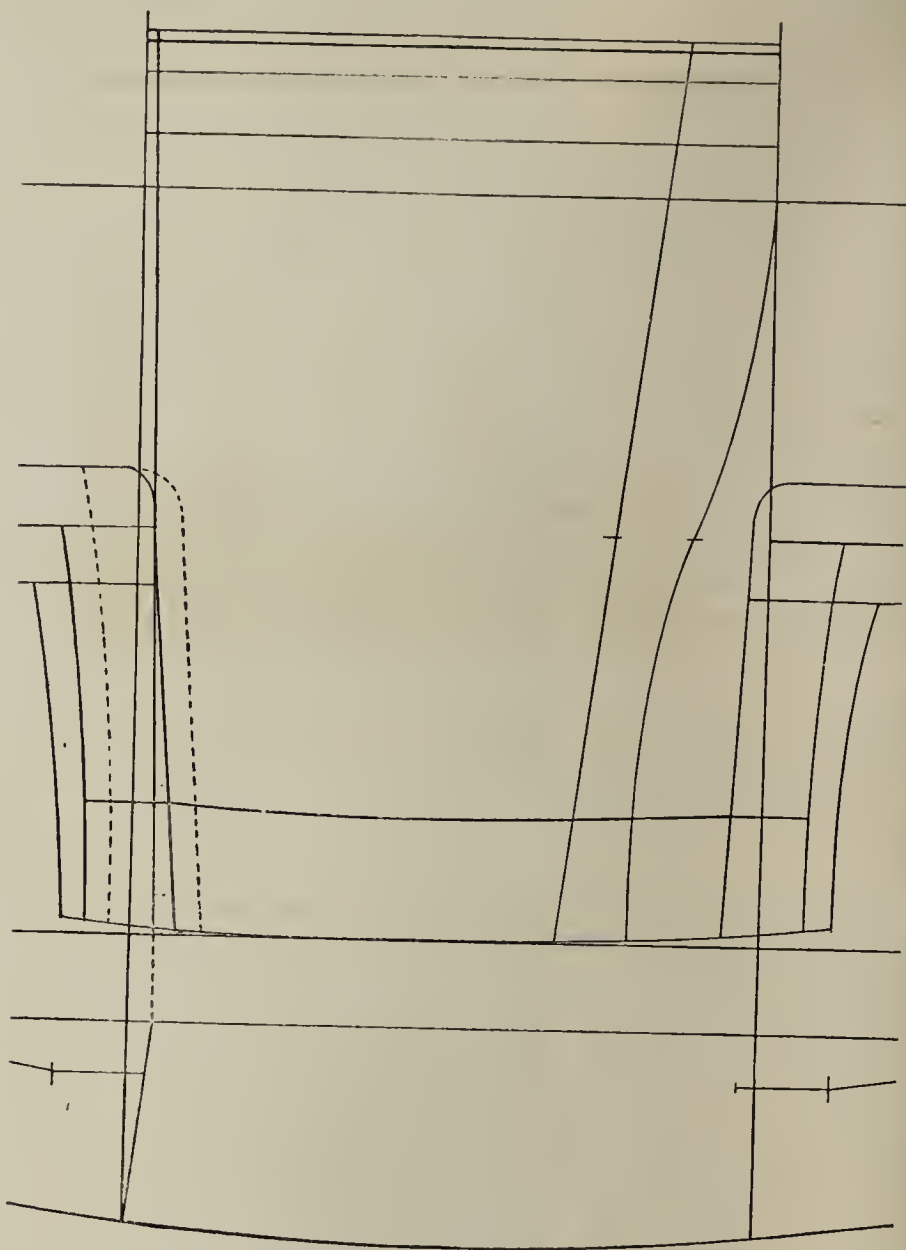
(See "A Problem for the Body-makers," October *Hub*, 1883, page 485.)

NEW-HAVEN, CONN., Jan., 1885.

EDITOR OF THE HUB—DEAR SIR: I noticed in the Problem Department of the October *Hub* an inquiry as to the best method of framing the front standing-pillar of a heavy job.

In response thereto, I beg to say that I know of no shop in New-Haven which has its pillars framed by the second method therein mentioned, and I do not think it is correct to work after that method. Although the door, when made in this way, measures the same width at

the top, center and bottom, it has the appearance of being wider at the bottom, which, I think, is objectionable; and not only does the outside of the door appear wider at the bottom, but the lace upon the inside presents a crooked appearance.



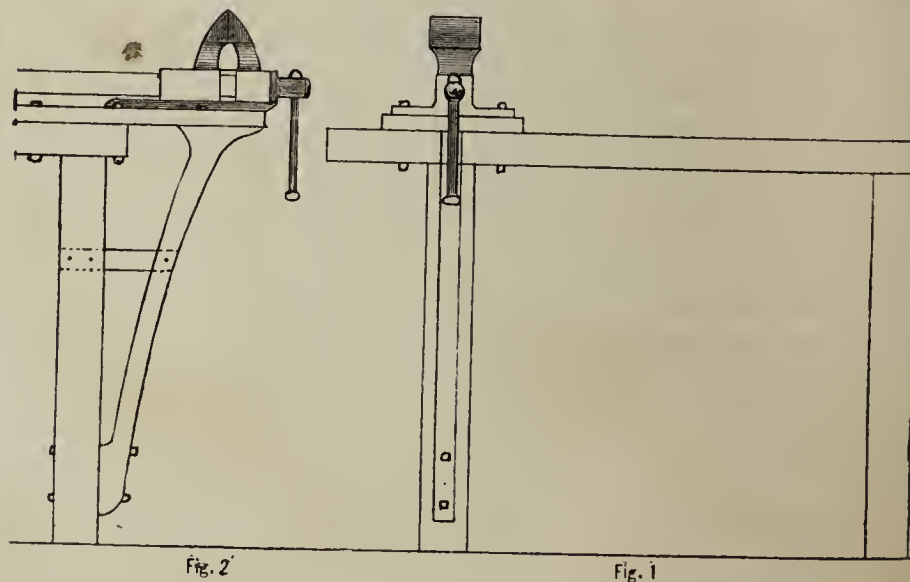
These defects in appearance are much more noticeable when the door is open than when shut, and a straight-edge placed against the edge of the door would touch only at the top and bottom; and the pillar of course could not be dressed with a straight-faced plane.

If made by the first method, as herewith illustrated in the accompanying outline sketch, the surfaces of both the standing and door-pillars are straight; and while the door is somewhat narrower at the bottom, it is not enough so to look pinched, unless the "throw around" or bevel of the pillars is excessive.

GEO. H. SMITH.

HINTS ABOUT PLACING A VISE.

EDITOR OF THE HUB—DEAR SIR: I herewith send you two drawings of sections of a bench with vise attached, showing the manner in which I place the same. Fig. 1 shows the side view; and Fig. 2, the end view.



I place the jaws of the vise about 9 inches from the outside edge of the bench, which enables me to work curved pieces in the vise in any position I desire. All kinds of seats can also be fastened in the vise without coming in contact with the bench.

J. H. MULLIN.

A NIAGARA hackman, wearing an \$8,000 diamond breast-plate, had his feelings badly lacerated a few days ago by a bootblack whom he had paid twenty-five cents for a shine, and who told him that he might make a fortune by hiring himself out for a light-house at Long Branch.

HINTS FOR BODY-MAKERS AND DRAFTSMEN.

XIII. FOUR DESIGNS OF FOUR-PASSENGER PHAETON BODIES.

THE accompanying four designs represent typical modern styles of light Four-passenger Phaeton bodies, with standing tops, and the following descriptions briefly suggest their most noteworthy features.



FIG. 1.

Fig. 1 shows a body with deep sides, which is not cut down in the center. To relieve the plainness, the stanhope-pillar at the rear seat continues down to the bottom of the body, and is finished toward the front in the manner indicated in the drawing. This body will admit of several changes if desirable. The center of the body may be cut out in the shape of the molding, or a door can be attached to it. Solid seats

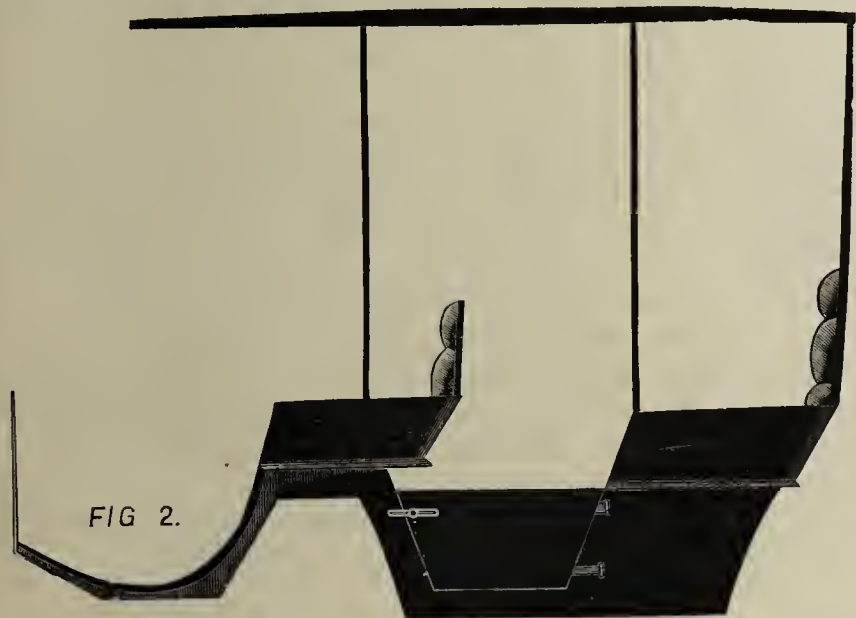


FIG. 2.

instead of stick seats may also be used. If the body is constructed with high sides as shown in our drawing, the front seat has sides only, and no back. In place of the latter, a lazy-back is then substituted, consisting of two halves hinged together in the center, and made to open when the seat is raised; and the seat is also made of two halves to allow of easy access to the rear seat. This body is hung on side-bars.

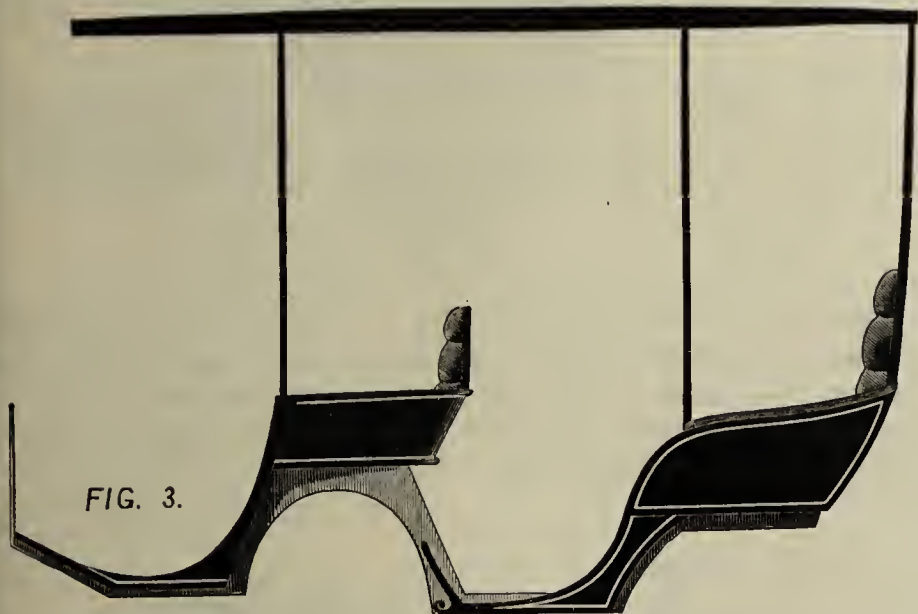


FIG. 3.

Its principal dimensions are these: Width of body on top, 33 in.; ditto bottom, 30 in.; ditto seat on top, 42 in.; and ditto bottom, 37 in. Height of body from the ground, 28 in. Height of wheels: front, 3 ft. 6 in.; and rear, 3 ft. 10 in.

Fig. 2 shows a plain pattern, made with a door. The back of the body, as will be noticed on the drawing, is slightly concaved, but the sides are straight. The door is narrowed in at the bottom, both back and front. To open the door on a vertical line, the bottom hinge is bent backward sufficiently to be on a line with the top hinge. Round corners are used for the seats.

Width of body on top, 36 in.; ditto bottom, 32½ in.; ditto seat on top, 42 in.; and ditto bottom, 37 in. Height of body from the ground, 30 in. Height of wheels: front, 3 ft. 2 in.; while the rear wheels are 3 ft. 8 in. high, if two springs are used at the rear, or 3 ft. 10 in., if only one spring is used.

Fig. 3.—The rear seat of this body is similar to that of a cabriolet, but has less swell. The sides are made of thick whitewood, which may also be applied to the back. The sides and back form a miter joint. The front seat is made like a buggy seat, and has round corners. A thin panel is let into the rear of the corner-pillars above the molding forming the arm-rail. Wings are advisable at the front and rear, to prevent mud from being thrown into the vehicle.

Width of body on top, below the front of the rear seat, 35½ in.; ditto back, 30¼ in.; ditto center, 31¾ in.; ditto at the bottom of front seat, 33 in.; at the dash, 30½ in.; front seat on top, 40 in.; bottom, 36 in.; rear seat on top in front, 43 in.; bottom, 40 in.; back on top, 39 in.; and bottom, 34¼ in. Height of body from the ground, 28 in. Height of wheels: front, 3 ft.; and rear, 3 ft. 10 in.



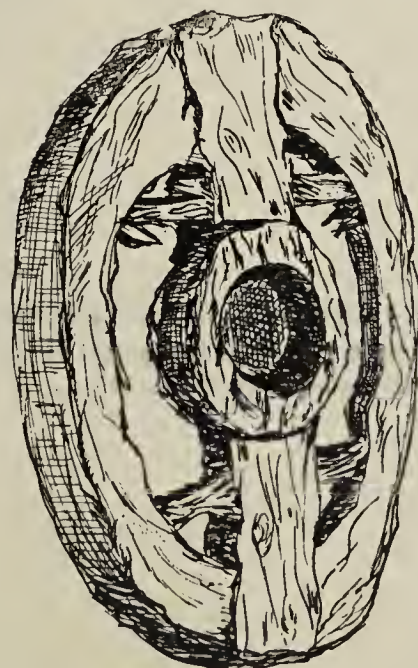
FIG. 4.

Fig. 4.—This should make a stylish looking vehicle. The rear seat and the body form an ogee sweep at the back. The door will add greatly to the good appearance of the job, and should be molded off as shown on the drawing. A light molding is fastened on the bottom edge of the body. The seat projects over the front of the body about 2 in., and is contracted toward the rear about 1¼ in. on each side. The sides are solid, and the moldings are worked on; or, if preferred, they can be made of framework and left open on the sides. The back, however, should be closed by a panel.

Width of body on top, 33 in.; ditto bottom, 30 in.; ditto top of seat, 42 in.; and bottom, 37 in. Height of body from the ground, 30 in. Height of wheels: front, 3 ft. 2 in., and rear, 3 ft. 9 in. ALBERT KEHRL.

A WHEEL FROM THE SANTA FÉ TRAIL.

THE Beck & Corbitt Iron Co., of St. Louis, have in their possession a highly interesting specimen of wheel, of which our Mr. Redding has made the following pen sketch.



Attached to it is a tag, bearing the following account of its history and characteristics:

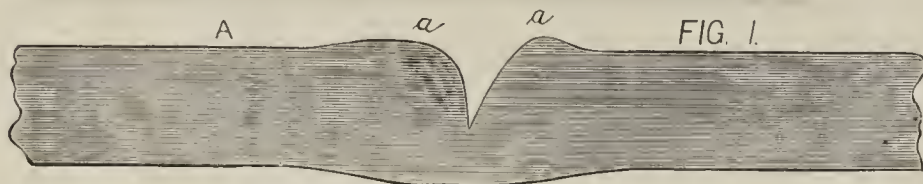
"This wheel, which is better than it looks, is not from Egypt, China or Peru, but was used a few years ago on the old Santa Fé Trail. It never lost a tire, sprung a spoke, or needed any grease, and would be traveling through the wilderness yet, but for the fact that the Atchison, Topeka & Santa Fé R. R. now follows the same old trail through Western Kansas, Colorado, New Mexico, Arizona, and Old Mexico."



HOW TO MAKE CORNERS ON ROCKER-PLATES.

(See six illustrations accompanying.)

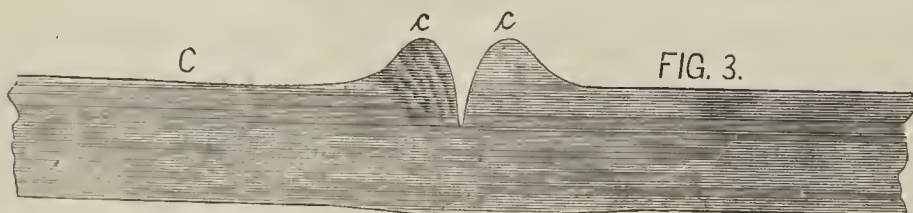
THE making of rocker-plates proves a perplexing job to many blacksmiths, and to such I desire to address the following hints, accompanied by a few illustrations which I hope they will understand.



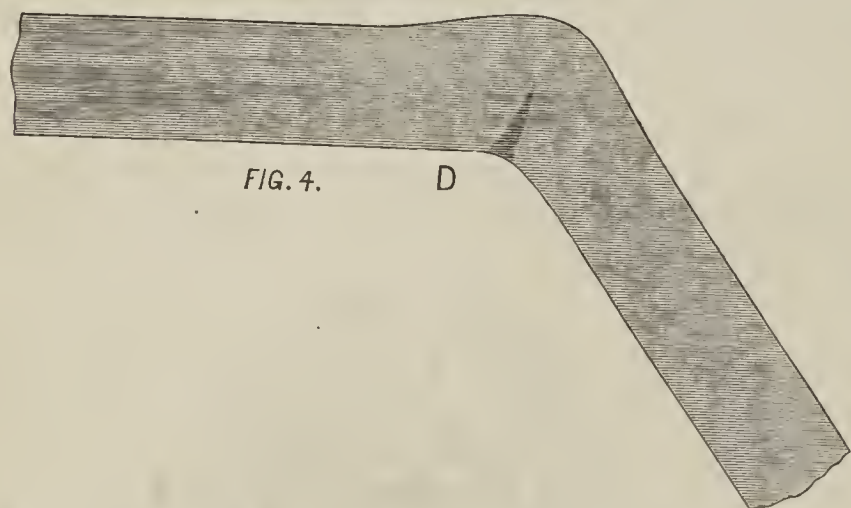
In the first place, I consider it one of the most important parts of the work to have all the inner corners of the plates rounded, if you have sufficient room on the wood. In other words, try to avoid having a



sharply defined corner on the inner side. I will endeavor to explain how this can be done. First upset your iron fully, which one heat will permit.

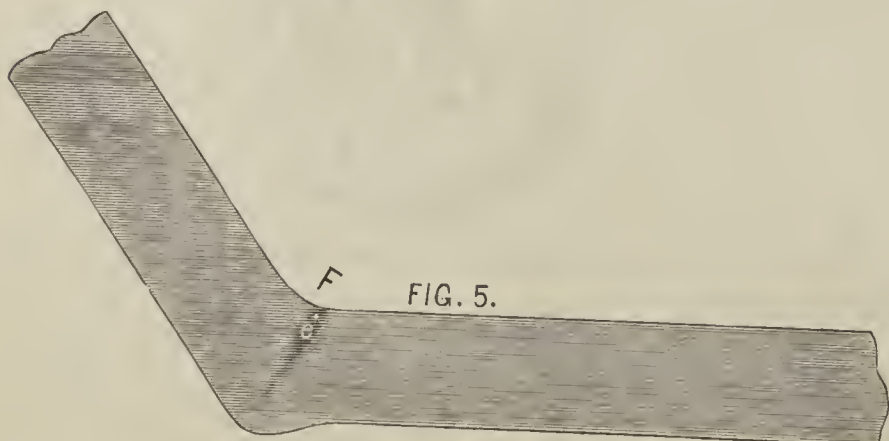


Then cut out a V-shaped piece as in A, Fig. 1, at *a a*, taking care to accurately calculate your angle and to cut diagonally across, as per edge view, Fig. 2, at *b*. Cut about $\frac{3}{4}$ in. wide across. Then fuller with a $\frac{1}{2}$ or $\frac{5}{8}$ in. fuller, from the inside of cut, to produce a scarf, as per Fig. 3,



at *c c*. Then bend to the desired angle, as per D, Fig. 4. Then take your fuller and set down any points of the scarf that may project inward. You then have as a result Fig. 5, as it appears at F.

To beginners I would suggest that a small punch be driven through at *e*, as in Fig. 5.



Then drive a piece of an old tire-bolt, as a rivet, through this hole, which will hold the lap fast. Then close down your scarf closely, and

take a soft heat. Use a little clean sand now and then, and have a clean fire, and you can rest assured that, with proper attention, you will effect a perfect weld, and leave your angle undisturbed. Dress up nicely with a flatter, and you will have a perfect corner, as per Fig. 6.

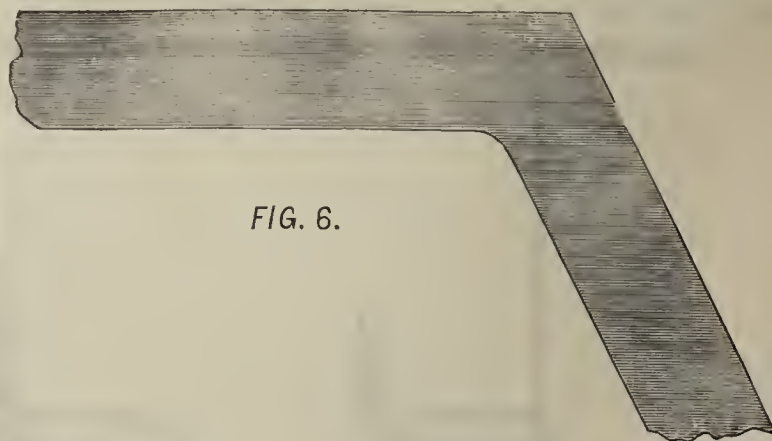


FIG. 6.

After a great deal of experience in this class of work, I prefer for rocker-plates the brand of iron known as Ulster. Many carriage-builders seem to think that any kind of iron is good enough for rocker-plates, but this is a great mistake, for obvious reasons. Supposing such a plate to break (and I remember having seen one case), the whole structure is thereby destroyed. And what can be done to mend it? Some patching may be attempted, but it is not likely to give satisfaction to either the owner or builder.

R. H. L.

HOW TO MAKE A POLE-CRAB.

(See sixteen illustrations on this and the following page.)

EDITOR OF THE HUB—DEAR SIR: We have a four-in-hand job to make, for which the gentleman ordering demands home-made pole-crabs, with a view to assuring a few of our transplanted nobility that there are Kanucks in the Dominion who are as good mechanics as there are in the Mother Country. None of our iron-workers here ever make a hook crab, nor do we know where we can purchase domestic ones. Please give full details of construction as clearly as is possible, and oblige,

T. H., Montreal, Quebec.

ANSWER.—The making of a pole-crab is an intricate piece of forging, and only those who make a specialty of such work and have the proper appliances, can do so with profit. In order to meet with anything like success, the very best material must be used, and then be manipulated by a superior iron-worker. However, if our correspondent desires to make the attempt, here are the processes.

The first thing to do is to get the size and shape required for the socket, and then make a pattern out of wood or sheet-iron.

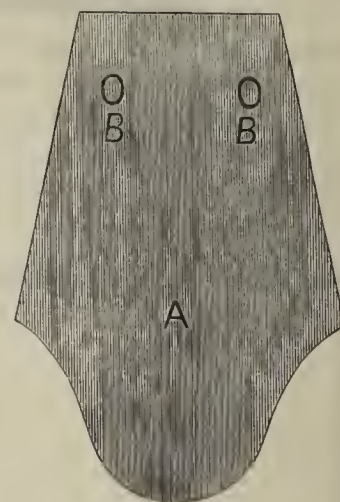


FIG. 1.

Then shape the iron as shown in Fig. 1, having it much smaller than the pattern, in order to allow of the raising of good heats, and plenty of manipulation. A shows the plate from which to form the socket. The oval holes B B are for the insertion of the arms which are to form the loops for the pole-straps.



FIG. 2.

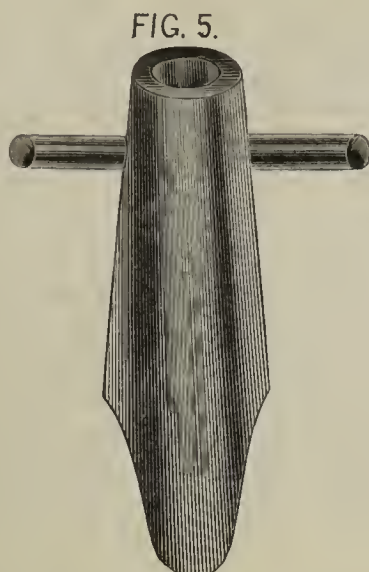


FIG. 3.

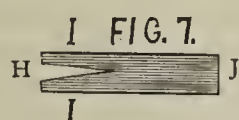
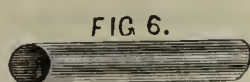
Next make two pieces as shown in Fig. 2, wherein C is the oval portion, and D the head for welding to the socket. Swage these pins and head in flush.

Fig. 3 shows the hole, which is countersunk. Insert one pin, and weld in the block, and dress down lively with a small fuller and backing hammer. Turn the welded pin off, and bend the plate a trifle. Insert and weld in the other pin.

In Fig. 4, F shows the plate, and G G the pins. Then plate out to proper size as per pattern. Trim with chisel, scaff, and bend with care. Weld on a warm mandrel. Weld the back end first.

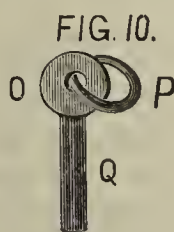


When the socket is welded, weld plug, Fig. 6, into the small end. Then split the arms, as per H in Fig. 7, and get the two ends I I. J is where the arm joins the socket. Form I I to proper size, and shape. Weld at



center, and if pole-straps are included in the order, make the same as a letter D, shaped as in Fig. 8, where K is the loop; and L, the arm.

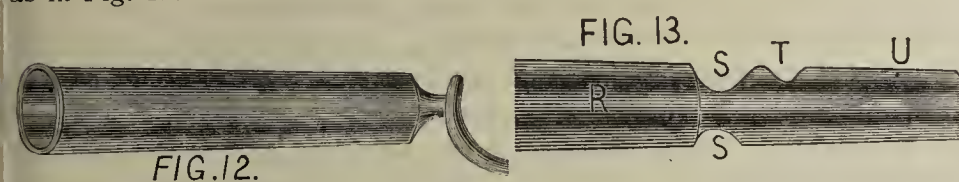
If chains are to be used, then make as shown in Fig. 9, where M is the loop; and N, the arm.



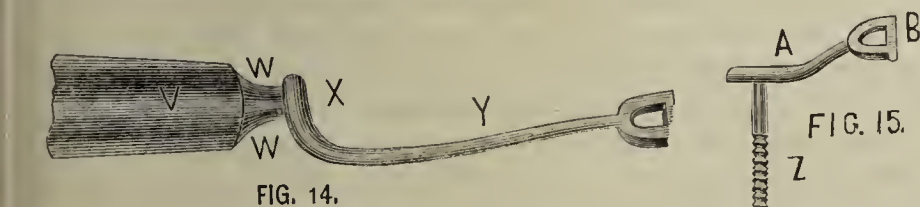
If a ring is required, then make as shown in Fig. 10, where O is the eye; P, the ring; and Q, the standard.

To form the D-shape, have a tapered mandrel as shown in Fig. 11.

This finishes all but the hook. The back end may be made of any desired shape. Customs vary. Some prefer the plain round back end, as in Fig. 12.



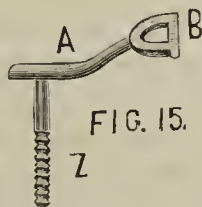
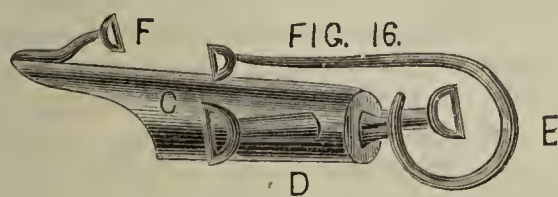
To form the hook, begin as shown in Fig. 13, where R represents the socket. Fuller in all the way round, as at S S. Then fuller in at the top only, as per T, and draw down U, tapering it the whole length.



You thus get Fig. 14, where V is the socket; W, the neck between hook and socket; X, the horn continuation of hook; and Y, the hook. A loop is formed for the safety-strap, made in the same manner as the loops on the end of the arms.

Rough-file the whole, and get in shape. Then bend the hook.

Next make the safety-strap bolt shown in Fig. 15, where Z is the bolt; A, the head; and B, the loop.



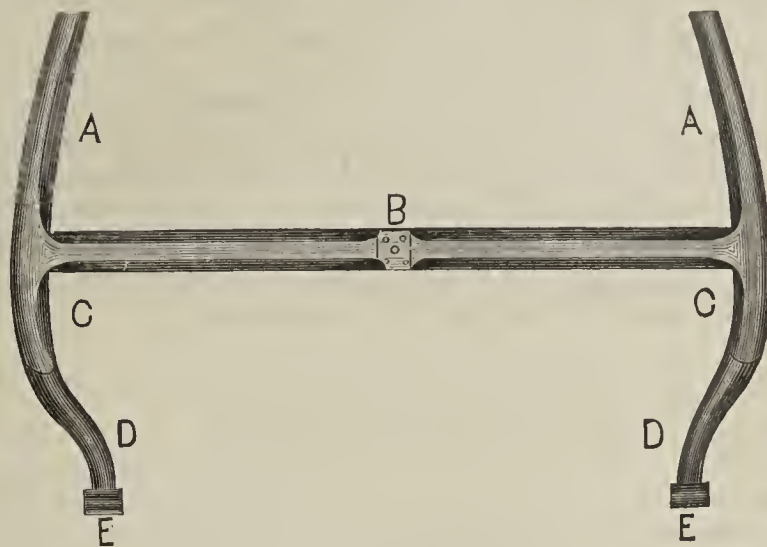
This completes the job, ready for the plater, burnisher and polisher; and we get the result shown in Fig. 16, where C is the socket; D, the arm and loop; E, the hook; and F, the safety-strap bolt. N. Y. S.

"HUMAN energy must have work; and if there are no elephants to catch, you will see mankind trapping mice."—*The Century*.

HOW TO IRON SHAFTS SO AS TO CLEAR THE FRONT SPRINGS.

EDITOR OF THE HUB—DEAR SIR: I have just completed a three-spring Pony Phaeton; and, with a view to having it ride easy at the forward end, I used a spring made as long from end to end as I could conveniently place there; but after the job was all completed, I found it impossible to use the shafts because of the hinder portion hitting the springs, and I was compelled to put in a new spring in order to get over the difficulty. Can you advise a method by which this trouble can be overcome? Respectfully yours, H. H., Chicago, Ill.

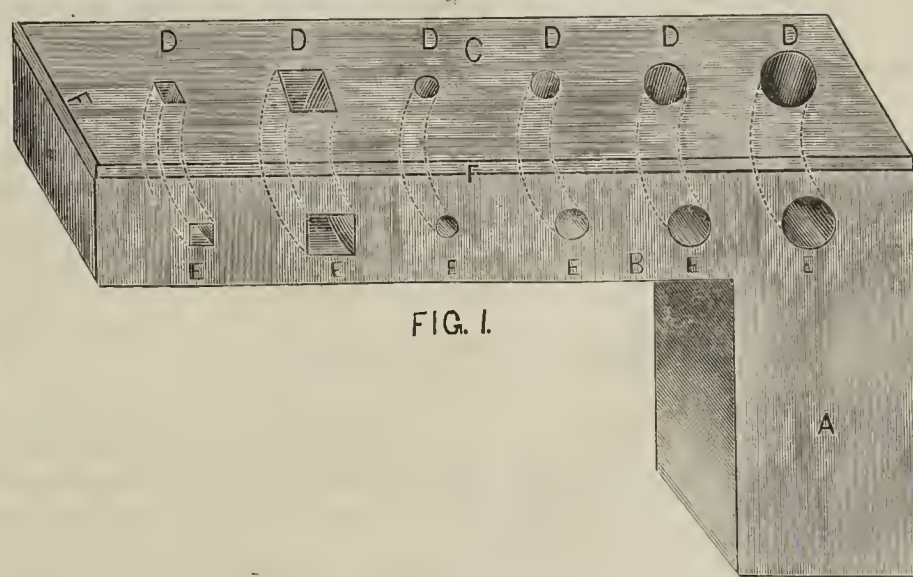
ANSWER.—This problem is an easy one, as we will endeavor to explain.



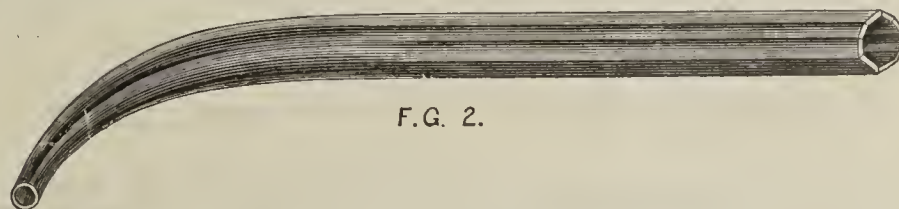
In the accompanying sketch A A show sections of the shafts in front of the bar; C C, the back sections; B, the bar; D D, the shaft-heels; and E E, the shaft-eyes. By means of your shaft-bar give the shafts spread enough at the back to clear the ends of the spring; and then, by means of long shaft-heels, bent as per sketch, you may overcome the whole difficulty. Shorten the wooden back part of the shaft in proportion to the increased length of the shaft neck. N. Y. S.

NOVEL DESIGN OF ANVIL PUNCH-BLOCK.

ALTHOUGH a little out of my line, I will try to describe a novel, and what I consider a perfect anvil punch-block, which is self-emptying.



A, in the accompanying Fig. 1, represents a square block which fits into the hole of the anvil. B is the front face, and C the top face. D D D..... indicate the holes on the top, and E E E..... the holes on the front. Dotted lines show the position of the holes in the interior of the block. The top is made of steel as shown at F. The holes are halfway through the block, coming out about the center of the front face. See holes E E E..... on B.



In making the holes, commence first with a straight punch, and then take a bent punch like that shown in Fig. 2, and the holes will then come out at the side. F. F. SOULE.

CHARLES CITY, IOWA.

CAMEL CARS.

IT is said that railway-cars drawn by camels will shortly constitute one of the peculiar features of travel and transportation in Central Asia. It is proposed by the Russian Government to lay a line of rails from Khiva to Tashkend, 600 miles farther East. The road is to be built on the Blecher system,—a kind of raised railway resting on peculiarly placed sleepers,—and will follow the course now taken by caravans,



HOW TO PAINT A WHITE HEARSE.

STERLING, ILL., Jan. 2, 1885.

EDITOR OF THE HUB—DEAR SIR: Please tell us in the columns of *The Hub* all about the fillers, paints and varnishes, with mode of working them, that are used on white hearses, and oblige, yours truly,

ROCK FALLS MFG. CO.

ANSWER.—See article entitled "How to Paint a Sleigh in Pure White," in Volume XXIII, page 357 (October *Hub*, 1881), which gives full particulars, equally applicable to either a sleigh or hearse.

PAINTING ON SILK.

MARIETTA, PA., Dec. 20, 1884.

EDITOR OF THE HUB—DEAR SIR: Will you please let me know how to paint on silk and satin? Do you prepare the surface first, before you paint on it? If so, will you please inform me what the preparation is? I wish to do some painting and gilding on a silk flag.

H. E. RUSING.

ANSWER.—Use oil-colors, but made to dry rather "flat,"—that is, have them mixed about half-and-half japan and oil. Then go ahead as with ordinary painting.

L.

HOW TO PREVENT SILVER-LEAF FROM TURNING BLACK.

BROOKLYN, N. Y., Jan. 5, 1885.

EDITOR OF THE HUB—DEAR SIR: I have ornamented many wagons, and am called now to ornament some with silver lettering, etc. My experience with silver-leaf, heretofore, has been that it will not hold its brightness, but turns black. Is it the fault of the sizing I use, which is the ordinary sizing used by gilders, or where is the difficulty? Please answer, and oblige,

D.

ANSWER.—We know of no way to prevent silver-leaf from turning black. Silver-leaf is no longer in use by our best wagon-painters, for the reason you have named in your letter. Aluminium-leaf has taken its place. Use this, with the same sizing, and you will experience no further trouble, as this holds its silvery brightness to the last. It costs less than silver-leaf.

L.

DARKENING OF VERMILION.

READING, PA., Jan. 2, 1885.

EDITOR OF THE HUB—DEAR SIR: I have trouble with my vermilion turning dark. I buy the very best English vermilion that I can get here, and have painted some wagons that were first-class in every respect when turned out, but the vermilion has turned dark recently.

I know the trouble was not with the varnish used over it, as that was light-colored and of the best quality. Do you think I could buy better vermilion in New-York, or what would you advise me to do? I am in trouble, and will be greatly obliged if you will send me an immediate answer by mail.

Yours truly,

C. F. N.

ANSWER.—This is a common complaint. The trouble probably exists in your manner of mixing the vermilion. It should always be mixed in a good grade of rubbing varnish, light in color. Oil and japan dryers should be strictly avoided wherever vermilion is in the case, as they are sure to darken it upon exposure to the sunlight.

L.

ORNAMENTATION OF ENGLISH MAIL-CARTS.

ARDLEIGH, ESSEX, ENG., Jan. 3, 1885.

EDITOR OF THE HUB—DEAR SIR: The Mail-Carts used in these parts are painted red, gold lettered, and shaded black, and have also a crown about $5\frac{1}{2}$ inches in diameter. Those that have come under my notice appear to be imitation, and have evidently fallen several steps below the original. May I ask you to oblige me with the shading, etc., through *The Hub*?

Yours truly,

M. W.

ANSWER.—We are not posted regarding the character of ornamentation used on English Mail-Carts, and have no ready means of gaining the necessary information. Our contemporaries in London can no doubt give you full particulars. The designs you refer to are very likely executed in decalcomanie, and transferred to the panels, in the same way that the crests of the New-York Cab Co. are applied to their cabs. In this event, you could no doubt obtain from the builders of the Mail-Carts referred to, one or more copies of such transfer designs at small expense.

IS NEW OR OLD KEG-LEAD PREFERABLE?

ARDLEIGH, ESSEX, ENG., Jan. 3, 1885.

EDITOR OF THE HUB—DEAR SIR: Would you kindly give your opinion on keg-lead. Our dealers keep two sorts: one called "old," which is stiff, something like putty, and the other called "new," which is very soft. The "old" will carry the most oil, and, in my opinion, covers the best. Your article on page 551 of the November *Hub* does not make the distinction, and if it would not be troubling you too much I would be much obliged if you would do so.

Yours truly,

M. W.

ANSWER.—We know of no reason why old keg-lead should be any better than the new. We should decidedly prefer the new. If the old is stiffer and covers better, that is simply because the oil has, from some cause, either become impaired in its qualities, or reduced in quantity. It is a mistake to over-dose with oil. The new keg-lead generally has nearly a sufficient proportion of oil for immediate use, excepting for the first or priming coats. All subsequent coats can be made from the keg-lead as taken from the package, simply diluted a trifle with turpentine.

L.

A WHACK AT WHITE-LEAD.

EDITOR OF THE HUB—DEAR SIR: One of my chief troubles as a manufacturer of carriages has been in the paint-shop.

A few years ago I tried a patent roughstuff that was warranted to save time and money and never crack or peel; but, after having been to the expense of re-painting, and paying my customers for re-painting, several car-loads of buggies, I had about come to the conclusion that the lead-and-oil system was the safest, even if it did occasionally play the mischief. At the recent meeting of the Carriage Builders' Association at St. Louis, however, the claims made by Scott for his system of doing away with lead, together with the samples of painting shown, have led me to make a careful re-examination of the whole subject.

I have read every communication in the paint department of *The Hub*, and other trade journals that I could get hold of, ever since the introduction of P. W. F., A. B. C., and other kindred substitutes for the poisonous leads, and I find that I am a seeker after knowledge in a field where a great many earnest people have preceded me with the crucible of the chemist and with most careful and painstaking experiment. Lead appears to be the battle-ground in carriage painting. I am only a learner, and do not profess to be able to sum up and give the results of all the discussion and experiment, or to tell just what is the value of that subtle, volatile substance which has such power to mar the work of a carriage painter, and which many still cling to from the lack of certain knowledge of something that is better; but I have gone far enough in the investigation to be satisfied that, from a scientific point of view, lead is wholly unfit for use in carriage painting. It has but a single qualification, and that is plasticity or covering quality. It is the most inelastic of the minerals. A wire, one-eighth of an inch in thickness, is ruptured by a weight of thirty pounds. Now, whatever else a material for carriage painting lacks, it must be elastic in order to be durable, or else it will require the skill of an expert to spread it thin enough and to cover it effectually with subsequent elastic coats to exclude the air, which is precisely what has to be done in every successful case of lead painting.

Moreover, all white-lead of American make contains sugar-of-lead, which, in case of dampness, attacks iron with rust. This sugar-of-lead also destroys the adhesiveness of oil. These are only a few of the points which science makes against lead, but these few help to explain the otherwise inexplicable process of putting on foundation coats of lead, and sandpapering each one of them nearly all off. It may be that the stuff will do more good when taken up in fine dust by the lungs of the painter than when left in any considerable quantity on the carriage. The uniform directions to sandpaper it off seem to imply that it will give either the painter or the carriage the colic.

Now, Scott may not be the lucky chemist or practical painter who has struck the compound that will banish lead from the average paint-shop, but I shall watch with interest the experiments being made with his system. Carriage-making, if not one of the fine arts, is getting to be one of the sciences, and as science is steadily on the move, and steadily pitching its tent each night one day's march nearer Truth, I am looking for some one to come along soon with a carriage panel that will dry in reasonable time, that don't have to be rubbed in with a brush and off with a rag, or laid on evenly with a brush and "well cut down with sandpaper," and that has the qualities of adhesiveness or "sticktoativeness," and elasticity, as well as plasticity.

MANUFACTURER.

RACINE, WIS., Jan. 2, 1885.

'T is a Dutch proverb that "paint costs nothing," such are its preserving qualities in damp climates. Well, sunshine costs less, yet is a finer pigment. And so of cheerfulness, or a good temper—the more it is spent, the more of it remains.—*Considerations by the Way.*

THE DEVILTRY OF VARNISH PITTING, AND HOW TO AVOID IT.

BY LOUIS MATERN.

AFTER the coach or car-painter has laid on his coat of finishing varnish of great luster and durability, having previously taken all possible precautions to accomplish a well-finished job, he may find to his chagrin that the varnish has not flowed out in a mirror-like surface as anticipated, but has turned to an unsightly surface of pits,—in some cases so invisibly small that they can be recognized by the eye only as a dull-looking surface.

What, now, causes varnish to thus pit? Briefly summed up, we find four periods in the course of painting and varnishing wherein these troubles arise, as follow :

Firstly : Pitting may arise from the undercoats of paints and varnishes, under the conditions named below.

When red-lead or sugar-of-lead has been used in any of the undercoats (even in the priming coat only), it is liable to penetrate sooner or later through the paint and varnish and cause pitting.

When too much oil has been used in the undercoats, the free oil works its way into the varnish, and likewise causes pits.

When the body-rubbing varnish has a very hard or glossy surface, it is apt to repel the finishing varnish, forming pits, globes or runs.

When the last undercoat is of a mixture of color-and-varnish, or of two imperfectly mixed body-varnishes, or of turpentine and varnish,—or of japan-dryer and varnish, or anything else mixed with the body-varnish, or dust having blown into it, an uneven surface may result, which, when rubbed down as usual with pumicestone, exposes partly hard and partly soft, partly quick and partly slow drying minute places. Of these, the soft and porous spots draw in some of the finishing varnish and form pits, while, where the hard particles hold out, the surface remains smooth or curls up.

When the last coat of rubbing varnish has been rubbed through to the next under-coat of a different varnish or composition, pits may appear at the rubbed-through places.

Secondly : Pitting may occur by reason of particles having got upon the surface previous to varnishing, as through impure water being used to wash the surface, or from a greasy or dirty chamois-skin or sponge, or pumice powder left in an unobserved place, or dust having settled in the surface, or from soap, grease, etc., from the hands of the operator, or, worse yet, his own saliva. A varnisher, who, at his work, sings, sneezes, talks or breathes heavily, is apt to impair the surface by saliva from his mouth distributed in an invisible spray, which is sure to cause pitting.

Thirdly : Pitting may be the fault of the finishing varnish.

If this contains undissolved gums, dust, or other foreign matters, it is apt to form pits or a dull surface.

If there is too much essential oil or spirit in the varnish, it evaporates too fast, and breaks the surface, thereby forming pits. To avoid this, the varnisher should expose freshly-opened finishing varnish to air for a few days, by loosening the stopper of the varnish-can, to let some of the spirit escape.

If the varnish brush has not been thoroughly cleaned, the particles left are apt to form pits, and are sure to form specks.

If a varnisher by his quick movements creates a draught over the varnished surface, it is apt to pit.

If, as mentioned in “Secondly,” the varnisher, in using his breath, allow particles of his saliva to mix with the finishing varnish, it is sure to pit. A careful varnisher is always on his guard not to allow his breath to come in contact with either the varnished or to-be-varnished surface.

Fourthly : Pitting may result from conditions to which the finishing varnish is exposed in the course of hardening.

Much has been said upon damp or dry air, or electricity, having something to do with pitting, but no proof has yet been given to substantiate the fact.

The need of ventilating a varnish-room without causing a draught has also been dwelt upon, but this is an impossibility. Draughts (which can hardly be avoided in a varnish-room) certainly often cause pitting, and they often arise from a stove drawing air from somewhere, and when the stove is heated, it is sure to draw a circulation of air from the stove toward and along the ceiling, descending again on the opposite side of the room from where the stove stands.

Injurious draughts may also occur by opening a ventilator ; by opening and shutting a door for ingress and exit ; by water on the floor in hot weather, which evaporates, rises and causes an upward current, striking against the varnished surface turned downward, and all the more so when the varnished surface is within a few inches of the floor ; by the varnisher walking swiftly through the room ; or by the varnisher’s breath coming in contact with the varnished job.

Pitting may also be caused by spotting the varnished surface with saliva (as explained in “Secondly”).

It may also occur by reason of crowding the varnish-room with too many jobs in course of finishing, which saturate the air with varnish spirits before the evaporation of the varnish is completed, as is unavoidable in the process of hardening the varnish. As slacked lime cannot harden in its wet state, neither can varnish harden while it retains its essential oils.

Allowing the varnish to remain too long exposed for hardening has a tendency to form hills and pits, by reason of minute matter being always contained in the varnish and flying into it during the time of its setting.

This slow setting of sensitive finishing varnishes is also the cause of small runs, in forms of something like an inverted comma (‘), which shows its worst feature on a much-hardened under-surface, particularly on an old job re-varnished. The explanation is this : a thoroughly hardened undercoat of varnish does not at once relieve the finishing coat of its varnish spirits by suction, but, setting quickly, it leaves the varnish too long in a fluid state, when the little specks in the finishing coat form loaded floaters and plow their way slowly down to the edge of the surface, or until arrested by the setting of the varnish to a consistency resisting its further progress. Heavy coats are more apt to do this than light ones.

By overheating the varnish-room, varnish will often sink or form pits. The spirit of the varnish is then evaporated too rapidly, and breaks up the surface into the shape of minute volcano mouths, or craters, and thus gives it a dull surface.

By letting the air cool down to freezing point, varnish is brought to a jelly-like condition forming hills and pits ; and, still worse, when it cools down to zero, before the varnish has sufficiently hardened, it will crack the varnish.

To guard against the more common causes of pitting as much as possible, the following conditions should invariably be observed. All undercoats of paint must be laid on flat, that is, without gloss. The painting must not contain any red-lead or sugar-of-lead. There must be at least two coats of a first-class rubbing-body varnish ; if less, the finishing varnish will not hold its gloss, and is sure to lose its luster in a short time. It must have at least two rubbings before finishing : first, a thorough one ; and, a day or two afterward, just previous to varnishing, a light one. This last rubbing is needed to remove the slight crust, now too much hardened for the finishing varnish to best adhere to it,—as explained under “Fourthly,” in referring to slow-setting varnish and runs. The varnisher must heed all the above explanations to guard against pitting.

In re-varnishing a job, it is not always advisable to underlay a coat of body-varnish or mixture thereof, as in this case nine out of ten times the finishing coat of varnish will shortly crack. Finishing varnish only gives no such tendency, but it would pit if the precaution were not taken (after having the job rubbed down, touched up and cleaned with great care) of giving it a coat of turpentine and gold-sizing mixed in the proportion of one pint of turpentine to twenty-five drops of gold-sizing. After about three hours’ time, this intermediate coat is ready to be varnished over, even with the most sensitive finishing varnish, and there is then hardly any risk of pitting. But the gold-sizing must be very sparingly used, or else the last coat of finishing varnish will crack and come off in a brownish powder, as if corroded by ammonia.

LOUIS MATERN.

BLOOMINGTON, ILL., Jan. 3, 1885.

HOW TO REMOVE OLD PAINT FROM A BODY OR GEAR.

RONDOUT, N. Y., Jan. 8, 1885.

EDITOR OF THE HUB—DEAR SIR : Allow me to ask a favor of you. I have a coach to do in first-class style. The paint is to be taken off from both the body and gear. I have never taken paint off from gears, and I would therefore like to ask you to inform me which would be the best way to do this.

Also, kindly inform me where I can obtain a good japan for mixing rough-stuff.

By giving me the above information you will oblige, yours respectfully,

JOHN GELLNER.

ANSWER.—The most effective way to remove old paint from a body or gear is to burn it off by gas, or by a charcoal burner, or by a spirit lamp. If neither of these is handy, then use a hot iron, but be careful not to scorch the wood.

Another way, adapted for gears only, is to scrape it off. To do this, take half an old spring leaf, as narrow as possible, and grind the edges flat on the grindstone. This you will find a useful tool for removing old paint from the spokes and woodwork. For the springs and ironwork, use an old chisel.

Almost any reliable varnish house can furnish you the japan you require.

L.

ADVERTISING ARTIST : “ May I paint your barn ? ” Peasant : “ Oh, certainly ; but the house needs it more. ”—*Fliegende Blätter*.



DESIGN APPLICABLE TO THE TRIMMING OF HEAVY CARRIAGES.

(See four Illustrations accompanying.)

PLAIN RECTANGULAR FINISH.

This design differs in several respects from that illustrated and described in the last number, pages 701 and 702, as will be seen by comparison. Fig. 1 shows the quarter; Fig. 2, the back; Fig. 3, the cushion and seat-fall; and Fig. 4 the door.

The upper part of the side quarter, in this design now before us, is made plain, but a space of about 10 in. is allowed on the back

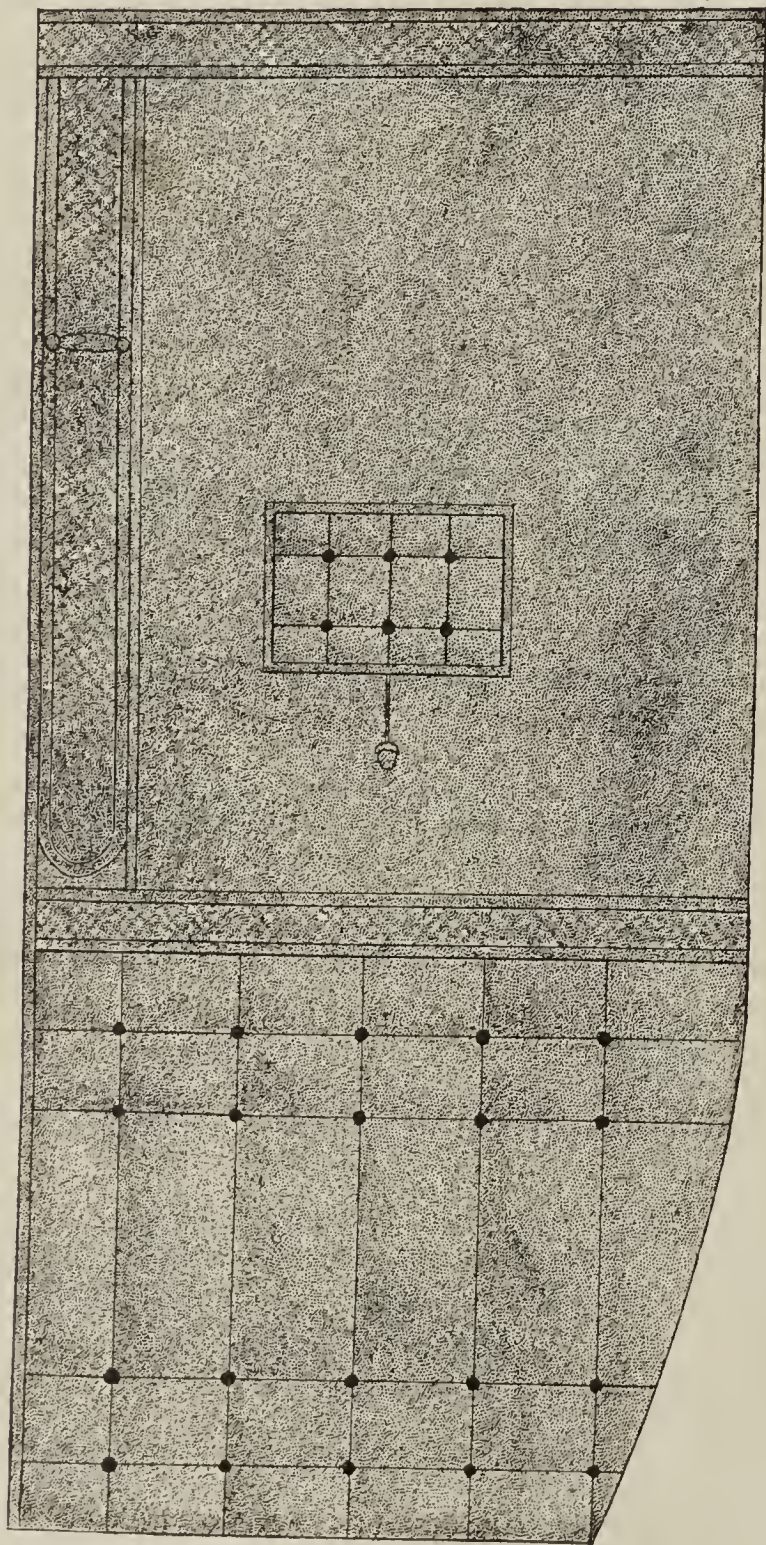


FIG. 1.

piece so as to relieve somewhat the excessive plainness of so large a surface. The blocks are made longer from right to left, which makes a slight change from the old style of squares. The pads over the windows are made in small squares. Use broad-lace with a small raised figure, green goatskin, and carpet to match. The fall is made up as shown in design, with springs in the back and cushions.

It is unnecessary for me to go into details regarding the laying off of this pattern, as any one can see the changes at a glance. In nearly all heavy work they are now using the long pipe roll in our cities, simply because it makes the easiest back.

W. H. E.

TRIMMING OF AN ENGLISH-BUILT BROUGHAM.

FROM a recent copy of the *News*, of Glasgow, Scotland, we quote the following description of the trimming and finish of an exhibition Brougham built by Mr. John Robertson, of that city. It says:

"Many little improvements have been made which are worth mentioning.

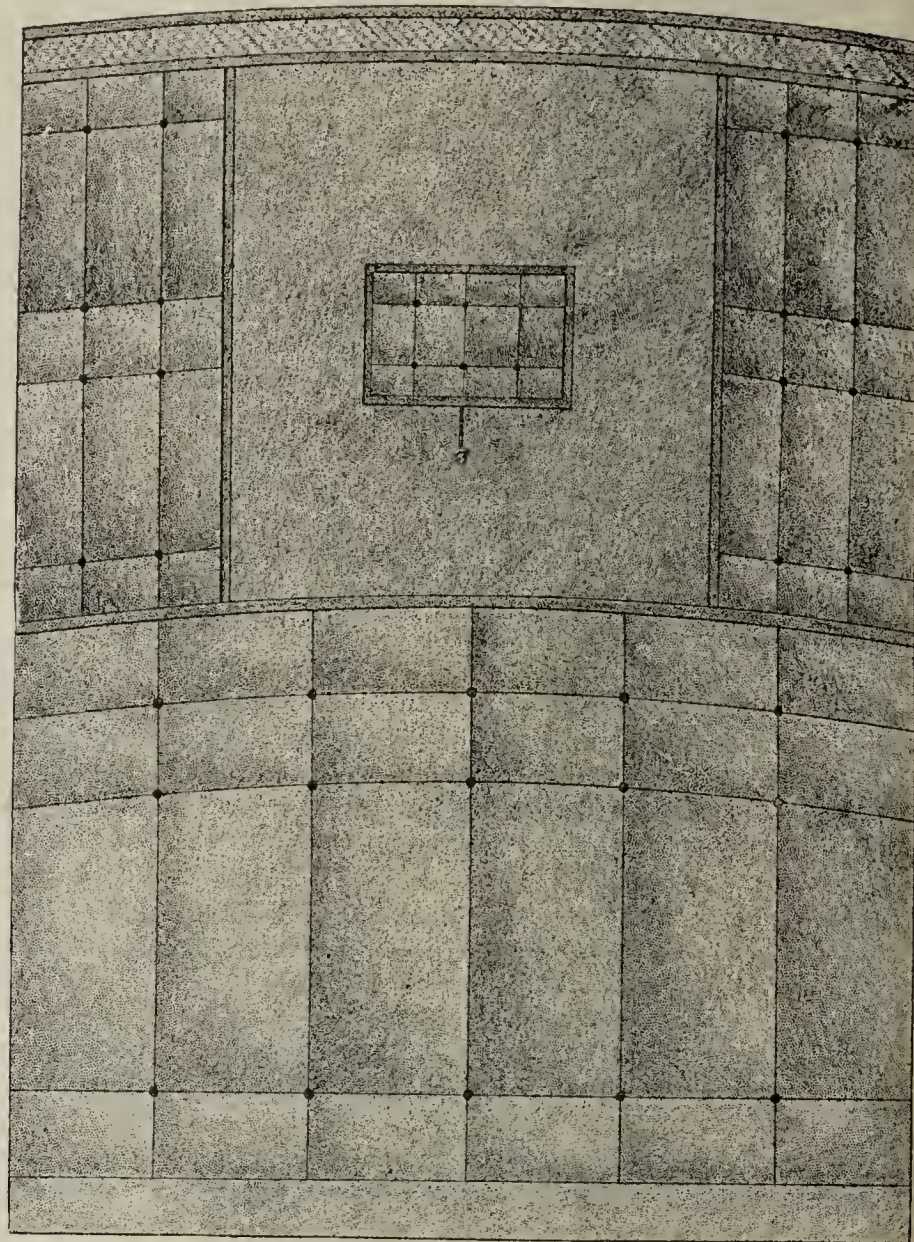


FIG. 2.

"The doors are carefully fitted with rubber stud-heads and slam locks to keep them from rattling; while the glass-frames, which so often prove a source of annoyance, are made to fit into cheeks with rubber wheels, which on wearing can be turned round.

"The front seat is made to fold up in a neat and ingenious way, which gives additional room, and enhances the appearance.

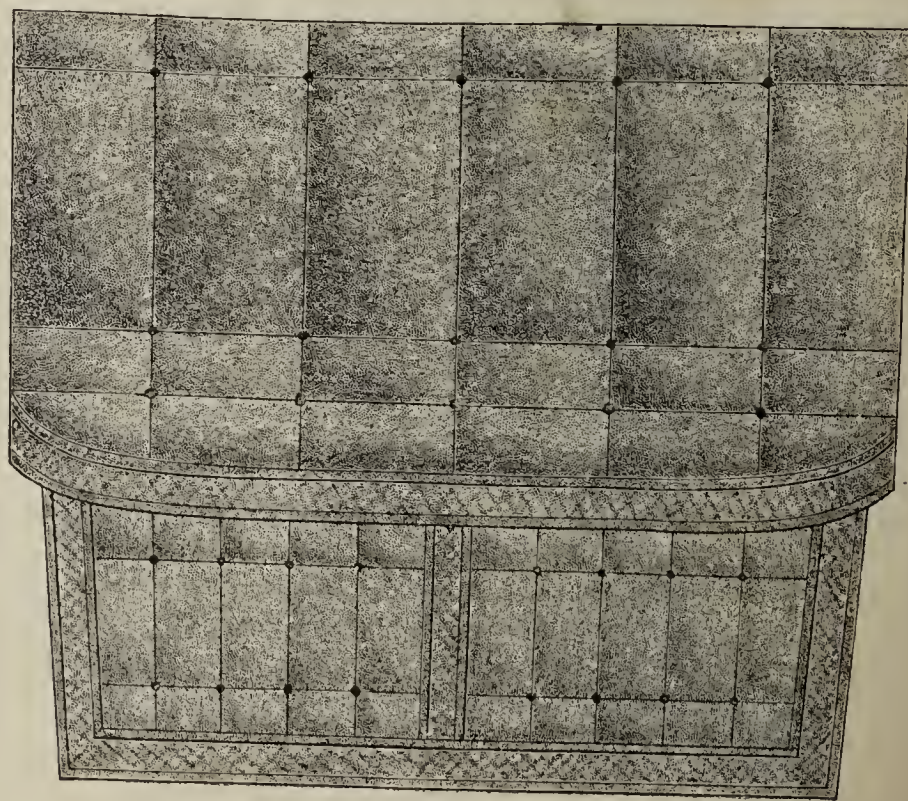


FIG. 3.

"On both sides of the quarters a small mirror with beveled edges is placed, and can be covered up.

"The inside is trimmed in a very handsome manner with silk velvet and sunflower-pattern lace, by Fry, of Dublin. The pockets on the door are dispensed with, and two deep and large pockets placed over the rocker open over the cushion, and cannot in any way be closed up.

"All the frames are covered with a rubber-solution—on a plan by Mr. Robertson—instead of paste, which now, after years of experience, has been found to answer all objections that were made against the use of paste, while it keeps out wet and preserves the frames.

"All the glasses are of plate-glass, with beveled edges. The straps are peculiarly fixed with brass plates with beveled edges, which prevents all damp from rotting the straps or covering of the frames.

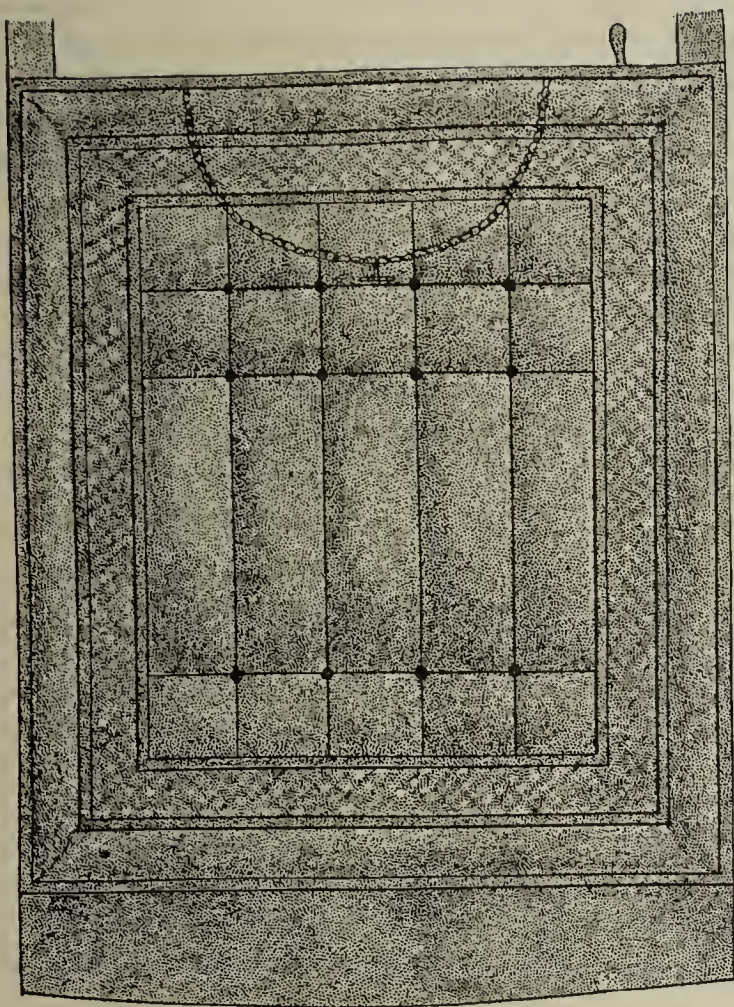


FIG. 4.

"All the steps have India-rubber pads, which catch the feet, while a most ingenious yet simple device of a bow of half-round iron prevents ladies' dresses from catching on the edges of the plate-step, and saves many an accident and many a dress.

"Much care has been taken with the springs, the end connections being with leather braces which keep down the noise.

"The brake is very efficient and simple in its construction, necessitating only two bolts for connecting the whole to the rocker.

"The wheels are light, fitted with the Warner patent, universally acknowledged to be the best, while the tyres are shod with rubber, a system that is highly spoken of and adopted on medical broughams.

"The body and carriage-part are painted alike—dark olive brown, picked out with old gold."

HINTS ABOUT LEATHERING SHAFTS.

NEAT trimming adds greatly to the appearance of shafts, and this feature should not be overlooked on first-class work. There are various designs and methods employed for leathering shafts, and I propose below to indicate some of the more popular of these, that I have either used myself or seen employed by others.



FIG. 1.

Fig. 1 shows a very popular pattern, the execution of which may be briefly described as follows:

The first important point in all such work is to place the leathers and straps in their proper places. The point leathers should be not less than 24 inches in length.

Place the hold-back straps 3 ft. 9 in. from the cross-bar of the shafts. Some builders prefer to put them 3 ft. 6 in., and I have seen them as far back as 3 ft. 2 in.; but I think this is liable to cause the shafts to lift up at the points when the horse holds back. The hold-back strap we cut 8½ inches long.

The trace-straps are placed 20 inches from the cross-bar, and are cut 11 inches long. When they are too short the traces soon cut them in two.

The straps around the singletree or whiffletree should be cut long enough to let the singletree work free, for it is very important that it

should move with the motion of the horse. I have known cases where such straps were made too tight, thereby causing the horse's shoulders to become sore, and also wearing away the hair from the horse's breast, where breast harness was used.



FIG. 2.

Fig. 2 shows two ways of putting on the straps last-named. (See A and B.) The key-straps (see C, C in Fig. 2) should not be tacked on top of the singletree, as is generally done, for the horse's tail will then be liable to catch on them. It is better to have a hole put through the singletree, as seen in cut, and to draw the strap through and hold it by a tack on the bottom. This will also look much neater than the old way of tacking on the top.

The methods of finishing the edges of the patent-leathers are so numerous that we will not attempt to give them all, but will name below a few of those most popular at present with us.

1st. The cheapest way is simply to black the edges and tack on.

2d. The next is to bind the edges, which look very neat when new, but it is not durable.

3d. The third method is to pare down the edges of the patent-leather, and draw a ½-inch flat welt around the edges, tacking on the bottom only. This makes a very neat finish and will wear well.

4th. The best method of all, in my opinion, is to finish the edges with a ½-inch harness-leather strap, shave the strap down to the thickness of the patent-leather, and crease the edges with a fine creaser. Then draw tight around the shafts, joining close to the edges of the patent-leather. This is the most durable method I know of, and the dead finish of the harness-leather looks well in contrast with the glossy finish of the patent-leather.

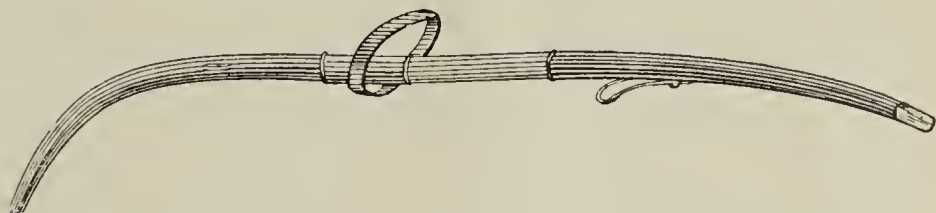


FIG. 3.

In Fig. 3, the point leather runs back past the hold-back strap. The point leathers are sometimes stitched on with a waxed-end, and other trimmers prefer to join the edges together and sew them on with a single needle. Generally, however, they are tacked on with 2½-oz. tacks. Drive them in evenly, and blacken the heads to prevent them from rusting.

C. G. Cook.

HELPFUL APPLIANCE FOR USE IN SEAMING-UP TOPS.

IN Fig. 1, I represent a method of seaming-up carriage tops, intended to be employed on first-class work where hand-work is required. By this method no basting with needle and thread is required for keeping the welt in its place while stitching. This affords a saving of almost half the time, as it takes nearly as long to baste in the welt as it does to stitch up the top, besides being a somewhat tedious job.

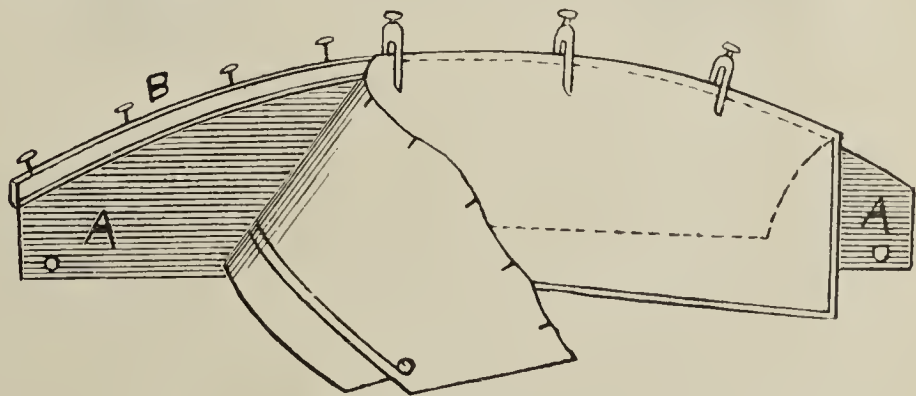


Fig. 1.

Our device for seaming up tops in this manner above suggested consists of a board rounded off to correspond with the round of the top quarter, see A A, in Fig. 1. The board can be made of a 5/8-inch panel, with the top or rounded edge tapered or beveled off to 1/8 inch.

The board can be held to the front edge of the bench by two screws when in use, or a stand may be made for it. I prefer having it fastened to the bench, as it only requires the taking out of two screws to remove it, and then it can be hung upon the wall and be out of the way when not in use.

The welt can be got out in the usual way. I simply dampen the leather with a wet sponge, and fold together, and rub down with a

slicker. Cut the welts the required width, and tack around the edge of the board, as shown at B, with 4-oz. tacks, placing the tacks 6 to 8 inches apart.

In this drawing I show a part of the top quarter in place ready for stitching, with the front hanging loose to show the welt. To place the top ready for stitching, hold the quarter and center-piece to the board by driving in tacks close to the edge, and draw them around the board, having the marks made in fitting come together, and hold at each mark by a clothes-pin, as shown in drawing. It is no trouble to put in a smooth welt in this way, and the fullness that may come between the marks can easily be drawn out, and it does not wrinkle the leather up as it does when a stitching-horse is used. I do not claim this to be new as I have used it for many years, but I find many ignorant of its use, and I never saw it in print.

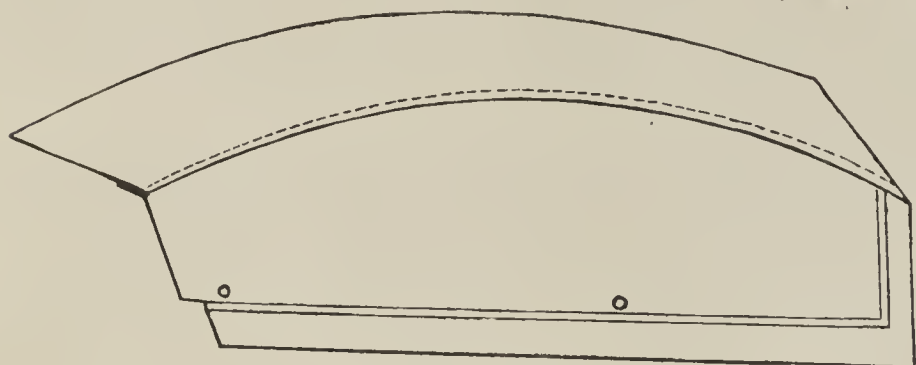


Fig. 2.

In Fig. 2, I represent a top seamed up on the sewing machine. While it has a cheaper appearance, it makes a neat and durable job when properly done, and one that can easily be repaired, as the leather is lapped. I think this method better than to stitch it up with a welt where rubber or enameled duck is used for the top. The top is fitted up the same as when seamed up by hand, excepting that the center-piece has a hem turned over where it laps on the quarters. It is well for beginners to baste the center-piece to the quarters on the bench with 2-oz. tacks before tacking it to the machine; but, after a little practice, no basting will be required.

C. G. COOK.

MOROCCO'S LACK OF VEHICLES.

THE land which gives the name to our most serviceable carriage linings—Morocco, is four days' journey from England. The territory is four times larger than that of Great Britain and Ireland; and yet a recent writer who knows the country well (Mr. C. H. Allen) says, there are only two carriages in all the country—one the Sultan's state coach for use in his gardens; the other a cart, said to exist at Tetuan, to carry merchandise across a flat belt from the sea to the town. Why there are no carriages in a country where they could be used, and would be used, is worth knowing by the carriage and harness-makers of this country.—*London Carriage-Builders' Gazette*.



TRADE GOSSIP OF THE PAST MONTH.

THE carriage trade of this country, West as well as East and North as well as South, has ruled phenomenally dull throughout the past thirty days, the only noteworthy and encouraging event being the lack of all events,—including failures, which were trifling in number and amount. New-York and New-England were favored by a "white" Christmas, which lent temporary activity to the sleigh trade; but rain followed three days afterward and closed that avenue of relief. Nearly all the leading manufacturers of carriages and carriage supplies are working a minimum number of hands on minimum time, which is unquestionably the safest course to pursue under existing circumstances, and one which, of itself, will prove largely restorative if wisely persisted in until the change of tide sets in. Faint tokens of an approaching change seem already visible. Since New-Years, a somewhat better feeling has appeared in nearly all branches of industry and in financial circles, which is clearly reflected by the public press, although it must be confessed that there has been but slight actual improvement in totals of transactions or in prices. There seems, however, some

reason for hope, founded upon conditions of trade already existing, that the worst has now been passed, and that general recovery—although it may be further delayed by accident, and be gradual when it comes—is now inevitable at no distant day. In the meantime, the policy of "lying low" continues to be a wise one; but it would also seem proper, for those who can, to begin now to get their nets and bait in readiness for promptly utilizing the increased demand which is sure to arise before long, and which, after the weeding out that has recently taken place, will find what is practically a new generation of supply houses to draw from.

* * *

ON Saturday, the 13th of December last, the markets for products probably touched the lowest level of prices ever reached in this country since records of prices began. The range of prices was a little lower at that time than it was earlier in the month, and since then, Dec. 13, there has been an advance in wheat, oats, corn, hay, potatoes, beef, cotton and all products of considerable relative importance. Thus far, therefore, Dec. 13, 1884, must be regarded as the period of lowest prices yet reached in this country. Let us hope that the day named may continue to retain its position of unenviable notoriety!

* * *

THE sudden death of William D. Rogers, of Philadelphia, elsewhere reported in this number, was received by the trade with universal sorrow. No member of the carriage fraternity was better known or more beloved. Among those present at his funeral, on Jan. 8th, were not only all his employes, some of whom had been with him for upwards of thirty years, but many prominent members of the trade from his own and other cities, including Messrs. McLear, Britton, Stivers, Pray, Hooker, and Killam, who had been so long and so intimately associated with him in the conduct of the affairs of the Carriage Builders' Association. His kindly face and intelligent counsel will be sadly missed at future conventions.

* * *

By a decision rendered last month by a New-York court, it appears that a man standing on the platform of an elevated railway car cannot be compelled to pass inside and take a seat or strap. If he refuses to go inside, in response to the brakeman's request, he can be put off the train; but if the train-men force him into the car, they are then guilty of assault and battery.

* * *

ON Friday, January 16th, the appeal from the judgment against Brewster & Co., in the famous case of *Brewster vs. Hatch*, which was affirmed by the General Term of the City Court last December, was argued before the General Term of the Court of Common Pleas, consisting of Chief Justice Daly, and Justices Larremore and Van Hoesen. Decision was reserved. Brewster & Co. were represented by Hon. W. H. Arnoux and Mr. Austin Huntington, and Mr. Hatch by Messrs. Robert Sewell and A. D. Pape. Should this appeal fail, Brewster & Co. will ask leave to go to the Court of Appeals, on the ground that an important question of public policy is involved in the case. Although the Court of Common Pleas is for most purposes the Court of Appeals of the City Court, yet, when the former Court feels that there are in such cases questions of law of sufficient importance to render desirable a judicial settlement of them by the Court of last resort in this State, it may in its discretion, upon application, allow the appellant to take them to the Court of Appeals.

* * *

A BROKER on the witness stand in a New-York court, having asserted that rehypothecation was "a custom," one of the lawyers reproved the witness by interjecting the remark: "A custom more honored in the breach than in the observance." The Judge is reported to have complimented the lawyer, after court had adjourned, on the felicitous turn of the expression. The same observation would apply with equal felicity and justice to the custom of feeing coachmen, and every reputable carriage-builder would heartily echo the sentiment; but that any manufacturer, reputable or otherwise, should be unable to enforce legal claim to a balance due him on the purchase price of a new vehicle delivered to a customer several years before the admitted giving of fees to the coachman, strikes us as too obviously unreasonable to receive the sanction of the courts. This is, however, but one of many questions involved in the celebrated case of *Brewster vs. Hatch*, wherein the carriage-builders of this country, each and all, have immediate and personal interest.

MR. TORREYSON, a blacksmith of Carson City, Nevada, is noted for his kindness toward animals. He has just built a Road Cart, now on exhibition at his blacksmith-shop, which is destined to revolutionize traveling by road and to materially lighten the labors of that noble animal, the horse. The idea is to occasionally give the horse a chance to ride in the Cart as the driver. The idea was first suggested by Mr. Torreyson by seeing a turtle move along the road carrying his shell with him. The vehicle made by Mr. Torreyson has four high wheels and the place between them arched, so that the horse is hitched under the wagon between the wheels, his head projecting a little beyond the front wheels, and his tail just barely clearing the hind wheels. The driver sits just over the horse's neck, and the others in the Cart face outwardly on each side. The horse is so fastened that the pulling is distributed over his body and does not all come on his neck and shoulders. In this position he is greatly protected from the sun and storm, and thereby enabled to make long journeys with less fatigue. But the principal part of the invention lies in a belly-band, about four feet wide, passing under the horse. When you reach the top of a long hill, down which a horse would have to go slowly as he held back the load, you simply turn a crank and it lifts the horse off his feet several inches from the ground, and the vehicle then runs down the hill of its own momentum. It is provided with a steering apparatus and a brake, that the vehicle may be steered and its velocity regulated. Several times during the day the tired horse has a chance to ride and is very much rested. Also, when the horse attempts to run away, you wind up the crank and he is lifted off the ground perfectly helpless.

* * *

IN 1873 *The Hub* published its first Carriage Draft-Book for the trade, which won immediate popularity. The first edition was speedily disposed of, and, in 1875, a second edition of the same book was brought out. The total sales of both editions aggregated two thousand copies. In 1876 appeared our "Draft-book of Centennial Carriages," which contained a complete illustrated review of the carriage display at the World's Exhibition in Philadelphia, with the then novel attraction of a colored plate of a Million, Guiet & Co. four-horse coach, specially produced for us by Mr. Brice Thomas, of Paris. In 1883 followed our "Draft-Book of Carriages and Wagons for Advertising Purposes," which called in numerous orders and gave promise of a large demand; but, within a month after its appearance, the entire edition was destroyed by fire, together with all engravings and electrotypes used in its preparation; and since that time we have been compelled to decline all orders in this line. The above gives a brief review of our efforts in the past to supply the trade with fashion plates of current styles of carriages, wagons and sleighs, conveniently arranged for ready reference, and attractively presented for the convenience of the draftsman and designer, and the salesman as well. In answer to the constant and increasing demand, which we have so long been unable to fill, we have now completed an elaborate new draft-book, entitled "Portfolio of Carriage Fashion Plates," which combines all the best features of our similar publications previously issued, besides introducing many that are quite new. It embraces two hundred and twenty specimen drawings of the latest and most approved designs of carriages, both light and heavy, business vehicles and sleighs, all drawn to scale, either half-inch or three-quarter; and included among them are twelve full-page colored plates. The price of this attractive and useful book is \$2.00, postpaid; and we only hope that it will be found by the trade to merit the same cordial reception that they have so kindly given to our previous efforts in this direction.

THE COST OF FIRES.

The Hub has had some experience in this matter, which has only stimulated the effort we have been making for years past to keep the subject constantly and prominently before the carriage trade. We desire now to call attention to certain facts of general interest which were brought out at a recent meeting of the National Board of Fire Underwriters.

From the statistics gathered by that body, it appears, for one thing, that \$100,000,000 worth of property is destroyed by fire every year within the United States. The figure is startling, and more so when we analyze it a little and test its significance by comparison. It means that fires annually cost the people of this country nearly twice as much as the total interest on the national debt! It means that we lose by fire every year a sum equal to about \$2 for every man, woman and child in this

country. It means that our annual fire tax is nearly twice as great as the tax we grumble at as war taxation in time of peace.

The facts are the more startling when we reflect that all this property is actually destroyed, and that the loss must be made up out of the earnings of the people and the productive industries of the country. It is delusive comfort to say that it falls chiefly upon the insurance companies, for such companies do not create the money they pay for fire losses. They collect it from the people, and the people pay every dollar of the cost of fires, besides paying the salaries of insurance officers and agents, and a profit to the companies.

Nor can those who own no houses comfort themselves with the thought that they have no part in this tax to pay. Those who own buildings must add the cost of insurance to their rents, if they let their property, or to their profits in business if they occupy their buildings themselves. Those who deal with them or rent their premises, must, in turn, exact this tax in their demands upon all with whom they have business relations; and in the end the money—\$100,000,000 a year—must be, and is, paid by the labor of the people and saved for that purpose by their self-denial.

The burden is a heavy one. To remove it would in effect add \$100,000,000 a year to the productive industry of the country, to the earnings of the people, to the amount we can devote every year to the maintenance of comfort in life. If we could put a stop to fires, we should be richer by \$100,000,000 a year.

There is need of a combined and enlightened effort to lessen the fire loss,—a much more pressing need, indeed, than for other reforms in which the public are always ready to take an interest. Look to it, reader, that you are doing your share!

REGULATIONS OF THIS ESTABLISHMENT.

We are indebted to one of our New-Haven friends for a time-stained copy of the print from which the following has been reproduced. It gives the shop-rules which were established in 1835 by Messrs. Brewster & Collice, the celebrated coach-makers of New-Haven, Conn., printed copies of which were posted in the different departments. It is hardly probable that there is another copy still in existence.

* * *

I. From the first day of April to the first day of October the working hours commence at 5 o'clock, A. M., and close at 7 o'clock, P. M., except on Saturdays, when they close at 5 o'clock, P. M. Two intermissions of one hour each are allowed for breakfast and dinner.

From the first day of October to the first day of April, they commence at 7 o'clock, A. M., and close at 9 o'clock, P. M., except on Wednesdays and Saturdays, when they close at 7 o'clock, P. M. Two intermissions of one hour each, are allowed for dinner and supper.

On the evenings of working, the establishment is closed at 10 o'clock, P. M., to which hour permission to work is given. The extra labor will be paid for.

Notice of the commencement and close of working hours is given by the bell.

II. No apprentice will absent himself during working hours without permission from one of the principals, or the foreman of his department; and it is expected that journeymen will conform to this regulation.

III. No journeyman or apprentice will receive wages upon any work in advance, or before it is completed.

IV. Wages will be paid at the close of business on Saturday of each week.

V. In no case shall any journeyman or apprentice use defective materials, or finish work having any defect, without first notifying one of the principals, or the foreman of his department.

VI. Ardent spirits or other intoxicating liquors will not be admitted into this establishment; and the daily or habitual use of such liquors elsewhere will be discountenanced.

VII. Profane, obscene, or other indecent language is not allowed.

VIII. Apprentices take precedence by the time they have served, without regard to age. All orders given through a journeyman or an elder apprentice must be obeyed.

IX. Six holidays each year are allowed each apprentice for recreation, and no more unless otherwise agreed.

X. Any injury to the buildings, or any part thereof, other than natural wear, will be charged to the person or persons who did the injury.

A BEGGAR on horseback is the latest Parisian novelty. He is dressed in rags, and his steed is not of Arabian extraction. He holds out his hat to receive alms, and if any one looks at him with an astonished mien he exclaims: "You must excuse me, but I am old and weak and cannot easily stand."

REVISED TARIFF OF CARRIAGE REPAIRS: 1885.

DAYTON, OHIO, LIST.

DAYTON, O., Jan. 1st, 1885.

EDITOR OF THE HUB—DEAR SIR: We herewith inclose our revised tariff list of carriage repairs for 1885, hoping that, if published by you, it will prove helpful to the trade.

Since there are about as many current prices for each item as there are markets for it, we would suggest that you leave a blank column for those who wish to fill out for themselves. We should particularly like to see this same schedule as filled out by other members of the trade in other cities.

We have extended the list from the previous one, changed some items, and arranged the whole in alphabetic order for ready reference.

Yours truly, C. A. BEDELL.

* * *

WOODWORK.

My
Prices.

AXLE-BEDS.—One new Hind Axle-bed.....	\$2 00	.....
Ditto, Front Axle-bed.....	2 50	.....
BARS.—One new Spring-bar, plain.....	1 00	.....
Ditto, carved.....	1 50	.....
One new Side-bar, plain.....	2 00	.....
Ditto, carved.....	3 00	.....
One new Cross-bar in Shafts.....	1 25 to	1 75
One new Back-bar for Platform, straight and narrow.....	2 00	.....
Ditto, wide.....	4 00	.....
Ditto, formed or bent.....	6 00	.....
One new Circle-bar on Pole.....	1 50	.....
BOXES.—Boxing one Set of Light Wheels.....	3 00	.....
Ditto, Heavy.....	4 00 to	5 00
Wedging or Canvassing Boxes in Wheels, each ...	50 to	1 00
Repairing and Re-setting Heated Boxes, each.....	75 to	1 50
Ditto, Coach, each.....	2 50	.....
BLOCKS.—One Pair New Rub-blocks.....	75	.....
BOWS.—One new Bow, woodwork only.....	2 00	.....
One Side new Bow, woodwork only.....	1 25	.....
EVENERS.—One new Evener on Pole.....	2 00	.....
HEAD-BLOCKS.—One new Head-block, plain.....	2 00	.....
Ditto, carved.....	2 50	.....
LABOR.—See "Time."		
NECK-YOKES.—One new Neck-Yoke, plain.....	2 50	.....
Ditto, silver-mounted.....	3 00 to	5 00
Ditto, gold-mounted.....	5 00 to	10 00
POLES.—New Carriage Pole, complete, and Neck-Yoke, plain	15 00 to	25 00
Ditto, mounted.....	20 00 to	40 00
One new Bent Pole Beam, using old irons.....	5 00	.....
Ditto, Straight.....	4 00	.....
Ditto, Coach or Hack Pole.....	5 00	.....
Ditto, Circle-bar.....	1 50	.....
PERCHES.—One new Single Straight Perch.....	3 50	.....
Ditto, Bent.....	4 00	.....
Ditto, Double.....	5 00	.....
PANELS.—One new Side Panel in Box Buggy (painting extra)..	4 00	.....
Ditto, End Panel.....	2 50	.....
New Back Panel in Phaeton, using old trimming (painting extra)	8 00 to	10 00
RUB-BLOCKS.—One new pair Rub-blocks.....	75	.....
RIMS.—One set new Rims, $\frac{3}{4}$ to $1\frac{1}{4}$ in., square.....	7 00	.....
Ditto, rounded.....	8 00	.....
One new Rim, $\frac{3}{4}$ to $1\frac{1}{4}$ in., square.....	1 75	.....
Ditto, rounded.....	2 00	.....
One new Half Rim, $\frac{3}{4}$ to $1\frac{1}{4}$ in., square.....	1 00	.....
Ditto, rounded.....	1 00	.....
SPOKES.—New Spokes in Wheel, plain, each, woodwork only...	25	.....
Ditto, patent.....	40	.....
Ditto, Old Hub, complete job.....	4 00 to	6 00
Cutting down Spokes, extra per set of wheels, Buggy	1 00 to	1 50
Ditto, Coach.....	3 00 to	5 00
SINGLETREES.—One new Singletree and Ironwork, plain	1 00 to	1 25
Ditto, mounted.....	2 00 to	3 00
SHAFTS.—One new Shaft, single bend, using old irons.....	2 00	.....
Ditto, two.....	4 00	.....
Ditto, one, double bend.....	2 50	.....
Ditto, two, double bend	5 00	.....
New Pair of Shafts, complete, single bend.....	7 00 to	10 00
Ditto, double bend, Barouche.....	8 00 to	12 00
TIME.—Labor, per hour.....	60	.....
WHEELS.—One new Wheel, Buggy or Carriage, using old irons.....	7 00 to	10 00
Ditto, Coach.....	8 00 to	12 00
Set of New Wheels complete, Light Wagon, $1\frac{1}{4}$ in.	20 00 to	30 00
Ditto, medium, $1\frac{1}{2}$ in.....	30 00 to	35 00
Ditto, heavy, $1\frac{3}{4}$ in.....	35 00 to	45 00

Set of Banded Wheels, complete, Buggy, $1\frac{1}{4}$ spoke	25 00 to	40 00	.....
Ditto, Phaeton.....	25 00 to	40 00	.....
Ditto, Carriage	35 00 to	45 00	.....
Ditto, Rockaway.....	40 00 to	50 00	.....
Ditto, Coach	45 00 to	55 00	.....

IRONWORK.

ANTI-RATTLERS.—New Rubbers, per pair.....	50	.....
Ditto, New Wire Springs, "	60	.....
Ditto, New Steel Springs, "	75	.....
AXLES.—	Iron.	Steel.
New set of Axles, Buggy, \$12 00	16 00.....	Resetting, 1 00
Ditto, Carriage.....	15 00	18 00..... " 1 00
Ditto, Rockaway.....	20 00	25 00..... " 1 50
Ditto, Coach	25 00	35 00..... " 2 00
Ditto, 1¼ in. Wagon	12 00	..... " 1 00
Ditto, 1½ in. Wagon	15 00	..... " 1 00
Ditto, 1¾ in. Wagon	20 00	..... " 1 50
[For One new Arm or Spindle, add to the above rates about 20 per cent.]		
Welding and Setting 1 Axle	2 00	.....
Splicing " "	3 00	.....
BOXES.—One second-hand Box, Fitting and Setting...	50 to	75
One new common Box, " "	1 00	.....
One new wrought Box, " "	1 25	.....
BANDS.—New set of Malleable-iron Point Bands.....	1 00	.....
Ditto, Silver Point Bands, No. 1.....	2 00	.....
Ditto, Gold Point Bands, No. 2	4 00	.....
Ditto, Gold Point Bands, No. 1	4 50 and	5 00
Ditto, Butt Bands	1 25	.....
Ditto, Spoke Bands.....	1 50	.....
BODY-LOOPS.—Welding one Body-loop End-spring....	1 50 to	2 00
[See also " Re-hanging."]		
BOLTS.—One new Kingbolt.....	75	.....
One new Clip Kingbolt [See also " Kingbolt."].....	1 25	.....
New Carriage-bolts, each.....	10 to	15
New Tire-bolts, each (drilling extra, each 5c.).....	5 to	10
New T-head Bolts, Singletree, each.....	30 to	50
Ditto, Jack-clip Bolt.....	25	.....
CLIPS.—One New Jack-clip and Shaft-eye.....	1 50	.....
Ditto, two.....	2 50 to	3 00
One new Jack-clip.....	1 00	.....
Ditto, Axle-clip.....	30	.....
Ditto, Patent Axle Saddle-clip.....	2 00	.....
Ditto, Spring-clip.....	30	.....
Ditto, Saddle-clip, 3 pieces.....	75 to	1 00
Ditto, Double Saddle-clip, solid.....	1 00	.....
Ditto, Brewster Saddle-clip, solid	75 to	1 00
COAL.—By Hand-blast, per hour, 5 lbs.		
Ditto, Power-blast, per hour, 4½ lbs		
DASH-FRAMES.—Dash-frames, new, for Wagon.....	3 00 to	4 00
Ditto, for Buggy.....	3 50	.....
Ditto, for Phaeton or Carriage.....	4 50	.....
Ditto, for Coach or Rockaway.....	5 00	.....
New Dash Foot, ironwork only.....	1 00	.....
Welding Dash Foot, ironwork only.....	50	.....
EYES.—One new Shaft-eye.....	1 00	.....
FENDERS.—New Fender Frames, reaching to step, each.....	3 50	.....
FIFTH-WHEELS.—One new Fifth-wheel for Buggy....	3 50 to	5 00
Ditto, for Light Platform Wagon.....	5 00 to	7 50
Ditto, Heavy.....	10 00	.....
FELLOE-PLATES.—One new common Plate (all drilling extra, 5c. a hole).....	25	.....
Ditto, per set, 8 Plates.....	1 25	.....
GUARDS.—One new Shaft-guard.....	40	.....
Ditto, Fifth-wheel Guard, straight.....	75	.....
Ditto, Branch.....	1 00	.....
HOODS.—New Hood on Wagon.....	1 50	.....
JOINTS.—One new set of Top-joints for Buggy.....	3 00	.....
Ditto, Carriage.....	5 00	.....
KINGBOLTS.—One new Kingbolt.....	75	.....
Ditto, Clip Kingbolt	1 50	.....
Splicing Kingbolt.....	75	.....
Welding Kingbolt.....	50	.....
LOCKS.—Lock for Spring Wagon.....	7 00 to	10 00
LOOPS.—New Check-loops, each.....	15	.....
Body-loops: See " Re-hanging."		
POLES.—Re-fitting Irons on Pole.....	1 50 to	2 00
Ironing Carriage Pole, new.....	10 00 to	15 00
PERCHES.—Welding Perch-plate.....	2 00 to	3 00
RAILS.—New Toe-rod or Rail for Buggy.....	2 50	.....
New plain Straight Toe-rod.....	75	.....
[See also " Shifting-rails."]		
RUB-IRONS.—Rub-irons, per pair, for Buggy or Carriage	75 to	1 00
RIVETS.—Rivets in Slat-irons, one roc.; each additional one....	5	.....
Rivets in Rims, each.....	10	.....
RE-HANGING.—Re-hanging Buggy, End-spring.....	3 00	.....
Ditto, Carriage.....	4 00	.....
Welding one Body-loop.....	1 50 to	2 00
SPINDLES.—See " Axles " in table above.		

IRONWORK—Continued.

SHIFTING-RAILS.—New Shifting-rail for Buggy	5 00	.....
Ditto, in Buggy, complete, using old trimming	7 00	.....
Ditto, Close-top Carriage	10 00	.....
SLAT-IRONS.—New Slat-iron on one bow	75	.....
New Slat-iron on four bows, or one side complete	2 00	.....
Ditto, both sides	3 00	.....
SHAFTS.—Welding 1 Shaft-iron	75	.....
Ditto, T on Shaft-iron and refitting	1 25	.....
One new Shaft-eye	1 00	.....
Re-fitting old Irons on new pair of Shafts	1 25	.....
Ditto, Circle and Plate	75	.....
Pair of Shaft-rubbers	50	.....
Ditto, Wires	60	.....
Ditto, Springs	75	.....
STEPS.—One new Step, long shank	3 00	.....
Two new Steps, long shank	5 00	.....
One new Step, short shank	1 00 to 1 50	.....
One new Step-plate	1 00 to 1 50	.....
STAYS.—Refitting Stay-irons	1 00 to 2 00	.....
New Stay-heel	2 50	.....
SPRINGS.—New Spring, 1¼ in., 4 plates	4 00 to 5 00	.....
Ditto, 1¼ in., 5 plates	4 50 to 5 50	.....
Per pound, Light, Medium and Heavy Springs	20, 23 and 25	.....
New Main-plate in Spring	1 50 to 2 00	.....
New other Plates in Spring	75 to 1 50	.....
Welding Main-plate in Spring	75 to 1 50	.....
Welding other Plates in Spring	50 to 1 00	.....
Setting up Spring	1 50 to 2 00	.....
TIGHTENING-UP.—Tightening-up Buggy or Carriage all around	1 00 to 2 00	.....
TIME.—Fire No. 1, on Repairs: 1st hour, \$1 00; each additional hour	75	.....
Fire No. 2, ditto, 75c.; ditto	50	.....
TIRES.—	Iron. Steel. 1 Tire. 4 Tires.	
New set of Tires, ¾ to 1 in.	\$7 00 8 00	Resetting, 75 3 00
Ditto, Buggy	7 00 8 00	" 75 3 00
Ditto, Carriage	8 00 10 00	" 75 3 00
Ditto, Rockaway	10 00 14 00	" 1 00 3 50
Ditto, Coach	12 00 16 00	" 1 50 5 00
Ditto, Wagon	7 00	" 75 2 50
Ditto, Wagon	9 00	" 1 00 3 00
Ditto, Wagon	12 00	" 1 25 4 00
WASHERS.—New Axle Washers, and Oiling	1 00	.....

PAINTING.

BUGGY.—Painting Gear and Varnishing Body	12 00	.....
Painting Gear and Body	15 00	.....
Burning-off Body and Re-painting whole job	20 00	.....
Varnishing Body and Gear	10 00	.....
CARRIAGE.—Painting Gear and Varnishing Body	15 00	.....
Painting Gear and Body	20 00	.....
Burning-off Body and Re-painting whole job	25 00	.....
Varnishing Gear and Body	12 00	.....
COACH.—Varnishing Gear and Body	30 00	.....
Painting Gear and Varnishing Body	40 00	.....
Painting Gear and Body	60 00	.....
Burning-off and Re-painting Coach	90 00	.....
JAGGER-WAGON.—Varnishing Gear and Body	10 00	.....
Painting Gear and Varnishing Body	15 00	.....
Painting Gear and Body	17 00	.....
ROCKAWAY.—Varnishing Gear and Body, Four-passenger Rock-away	20 00	.....
Painting Gear and Varnishing Body	35 00	.....
Painting Gear and Body	40 00	.....
Burning-off and Re-painting whole job	55 00	.....
SPRING WAGON.—Painting, plain body, elliptic spring	10 00 to 15 00	.....
Ditto, paneled, platform gear	15 00 to 20 00	.....

[NOTE.—The numerals and abbreviations used below to distinguish the items of painting indicate the following jobs, namely: 1. "P," Plastering; 2. "V," Varnishing; 3. "TV," Pumicing down, touching up and varnishing; 4. "CV," Sandpapering, coloring and varnishing; and 5. "CCV," Cutting close or burning off, painting, coloring and varnishing.]

	Light Wagon.	Heavy Wagon.	Jagger.	Buggy.	Surrey.	Carriage.	Rockaway.	Coach.
1. "P,"	\$5 00.	6 00.	8 00.	8 00.	9 00.	9 00.	12 00.	15 00
2. "V,"	6 00.	8 00.	10 00.	10 00.	12 00.	12 00.	20 00.	30 00
3. "TV,"	8 00.	10 00.	12 00.	12 00.	13 00.	13 00.	25 00.	35 00
4. "CV,"	10 00.	13 00.	15 00.	15 00.	17 00.	20 00.	40 00.	60 00
5. "CCV,"	15 00.	20 00.	20 00.	20 00.	22 00.	25 00.	65 00.	90 00
Scr'p'g Gear, Extra	3 00.	4 00.	3 00.	3 00.	3 00.	3 00.	5 00.	6 00
Platf'm, Additional	.. 5 00.	5 00.	5 00.	5 00.	5 00.	5 00.	6 00.	8 00
Painting Canvas Top on Wagon	3 00 to 5 00							
LETTERING.—Lettering, Plain, per foot	15							
Shaded, per foot	25							
Shaded and Ornamented, per foot	40							
Gold, Plain, per foot	50							
Gold, Shaded, per foot	75							
Gold, Shaded and Ornamented, per foot	1 00							
TIME.—Skilled Labor, per hour	75 to 1 00							
Ordinary	50							

TRIMMING.

APRONS.—New Rubber Apron, with Dash Pocket	3 00	.....
Ditto, 3 yds. of 32 oz	5 00	.....
Ditto, together with Dash Protector	6 00	.....
BOOTS.—New Rubber Boot on Buggy	3 00	.....
New Leather Boot on Buggy	5 00	.....
	Wood. Iron. Paint. Trimming. Total.	
BACKS.—Wagon	\$ 50 1 50 25 75, roll	3 00
Wagon	50 1 50 25 4 00, drop	6 25
Buggy	1 00 5 00 1 00 8 00, drop	15 00
Panel	6 00 1 00 3 00 12 00, springs	22 00
Side Panel, at same time, 2 00 1 00 1 00 3 00, each		7 00
Remov'g and replac'g Trimming in Back of Phaeton, 2 00 to 1 00 to		4 00
Ditto, Buggy	1 00 to	1 50
BOWS.—One new Front or Back Bow, first-class		6 00
One new Middle Bow, at the same time		4 00
Four new Bows		20 00
Reduction on the above for each Socket used		50
Re-covering Bow, one side		1 25
Ditto, and Splicing Bow		2 50
One new Bow-socket		2 00
One new Bow, covered with Moleskin, and top tacked		3 00
Ditto, two new Bows		5 00
Ditto, four new Bows		10 00
Re-covering Bow, one side		75
Ditto, and Splicing Bow		1 50
BINDING.—Buggy Top, back or front, Stitching, each		1 50
Ditto, Tacking, each		75
Rug	50 to	1 00
Dash	50 to	2 00
Fall	50 to	1 00
	Back. Pair Side.	
CURTAINS.—New Curtains on Buggy, Rubber	3 00 to 4 00	.....
Ditto, Colored or Flock	3 50 to 6 00	.....
Ditto, Cloth-lined	5 00 to 8 00	.....
Ditto, Leather, Cloth-lined	7 00 to 11 00	.....
Ditto, on Wagon, Rubber	3 50 to 4 00	.....
Ditto, Canvas	3 75 to 4 50	.....
CURTAIN-STRAPS on Buggy, per pair	50 to 75	.....
Ditto, Jagger Wagon, made with Buckle and Billet, per set		1 50
Ditto, Wagon, plain strap		75
CHECK-STRAPS.—Check-straps, per pair		75
CROSS-STRAPS.—Cross-straps, new and good		5 00
Ditto, old Mountings, and 2d-class		2 50
	Cushion. Fall. Total.	
CUSHIONS AND FALLS.—Cush'n and Fall for Wagon	3 50 50 4 00	.....
Ditto, Buggy	6 00 2 00 8 00	.....
Ditto, Phaeton	7 00 2 00 9 00	.....
Ditto, Jagger Wagon	5 00 1 00 6 00	.....
New Cushion Top, Rubber		1 50
Ditto, Leather or Cloth	2 50 to 3 50	.....
Ditto, Bottom		1 00
Re-stuffing with Moss, when Repairing		1 00
Ditto, Moss and Hair	1 50 2 00	.....
	Phaeton. Buggy. Carriage.	
CARPET.—Brussels Carpet	2 00 2 50 3 00	.....
Velvet Carpet	2 50 3 50 4 00	.....
Best Wilton Carpet	4 00 5 00 6 00	.....
Oil Carpet	50 75 1 00	.....
CLEANING, OILING OR VARNISHING Buggy Top		1 00
Ditto, Carriage		2 00
Ditto, Landau	3 00 to 5 00	.....
DECK.—See "Lining" and "Tops."	Trim. Ironw'k. Total.	
DASHERS.—Dasher for Wagon, Moleskin	\$3 00 3 00 6 00	.....
Ditto, Wagon, Split Leather	4 00 3 00 7 00	.....
Ditto, Buggy, Split Leather	4 50 3 50 8 00	.....
Ditto, Phaeton, Split Leather	7 50 4 50 12 00	.....
Ditto, Coach, Grained Leather	9 00 5 00 14 00	.....
Ripping and Re-stitching Dasher Cover	2 00 to 4 00	.....
Ditto, to Weld Dash-foot	1 00 to 1 50	.....
FRAMES.—See "Window-frames."		25
FENDERS.—Fenders, per foot	Ironwork. Trim. Total.	
New Fenders, Leather, each	\$3 50 3 50 7 00	.....
HANDLES.—New plain Silver Club Handles	1 50 to 2 00	.....
New plain Gold Club Handles	2 00 to 4 00	.....
New heavy Gold Club Handles	4 00 to 10 00	.....
	Ironwork. Trim. Total.	
HOODS.—New Hood on Wagon	\$1 50 1 50 3 00	.....
JOINTS.—New set of Joints for Buggy		3 00
Ditto, Carriage		5 00
KNOBS.—Set of Knobs put on job		75
Ditto, Knob-patches put on job		1 50
LABOR.—See "Time."		1 50
LACES.—New Lace in a Buggy		50
LIGHTS.—New Lights in a Buggy		50
LININGS.—Wagon Deck, with Damask	2 50 to 3 00	.....
One Side Curtain, Buggy, with Cloth, at \$2 00 per yard		3 00
Two Side Curtains, Buggy, ditto		5 00

TRIMMING—Continued.

One Back Curtain, Buggy, with Cloth, at \$2 00 per yard...	3 50	.....
One Stay, Buggy, ditto.....	2 00	.....
New Deck in Buggy and Re-binding Top..... 10 00 to	12 00	.....
Ditto, and Re-tacking Top..... 4 00 to	5 00	.....
[See also "Slip-lining."]		
NUTS.—New Top-prop Nuts, each.....	15	.....
PROPS.—New Top-props put on job, each.....	1 25	.....
RIVETS.—New Rivets in Top Joints, each.....	25	.....
SHAFTS.—New Metal Tips, Malleable, per pair.....	40	.....
Ditto..... Silver..... "	60	.....
Ditto..... Gold..... "	75	.....
One new Leather Tip.....	75	.....
Two new Leather Tips.....	75	.....
Set of Middle Leathers.....	75	.....
Ditto, Leather Straps.....	75	.....
Ditto, Rounds.....	1 00	.....
New Trimming of Shafts, complete..... 2 50 to	4 00	.....
SAFETY-STRAPS.—Safety-straps, per pair.....	75	.....
SOCKETS.—One new Whip-socket.....	75	.....
Ditto, Bow-socket..... 1 25 to	2 00	.....
Seamed. Bound.		
SLIP-LININGS.—For Buggy..... 5 00 to	6 00	.....
For Phaeton..... 6 00 to	7 00	.....
For Carriage..... 6 00 to	7 00	.....
For Rockaway.....	12 00	.....
Ditto, including Deck.....	20 00	.....
For Coach.....	20 00	.....
Ditto, including Deck.....	35 00	.....
TOPS.—New Deck on Wagon, Duck.....	4 00	.....
Ditto, Rockaway..... "	6 00	.....
Ditto, Rockaway or Coach, Canvas.....	10 00	.....
New Deck and Quarters on Buggy, Rubber.....	18 00	.....
Ditto, Carriage, Rubber.....	25 00	.....
Ditto, Buggy, Leather.....	35 00	.....
New Canvas Top, complete, on Wagon.....	25 00	.....
New Rubber Top, ditto.....	20 00	.....
Ditto, Buggy.....	25 00	.....
Ditto, Carriage.....	35 00	.....
New Leather Top, complete, on Buggy.....	40 00	.....
Ditto, Carriage.....	60 00	.....
New Wagon Top.....	30 00	.....
New Buggy Top, Rubber, using old Rail and Back.....	40 00	.....
Ditto, Leather, ditto.....	60 00	.....
New Carriage Top, Rubber, using old Rail and Back.....	60 00	.....
Ditto, Leather, ditto.....	90 00	.....
TIME.—Labor, per hour.....	60	.....
WINDOW-FRAMES.—Re-covering new, with Cloth, each, 1 50 to	2 00	.....
WHIP-SOCKETS.—Common, for Spring Wagons, etc.....	50	.....
Ditto, Good.....	75	.....

NOTE.—We shall be happy to publish similarly detailed repair lists representing current prices in other leading cities, if our correspondents will kindly furnish us with the necessary particulars.—ED.

TARIFF OF WAGON REPAIRS IN FAIRFIELD, KY.

A wagon-maker correspondent of the *Blacksmith and Wheelwright*, doing business in Fairfield, Ky., contributes to that journal his list of wagon repair prices, as follows:

WAGON REPAIR TARIFF.

Set of New Wheels.....	\$20 00
Tire Bolts.....	5
$\frac{1}{4}$ and $\frac{5}{16}$ Carriage Bolts (put in).....	10
Welding Springs.....	1 00
Buggy Spokes.....	20
Heavy Spokes..... 30c. and	35
Buggy Fellies (dressed).....	1 60
Wagon Fellies, each.....	50
Two-inch Axle, new.....	7 00
Welding and Setting Axle.....	3 50
Wood Axle.....	2 50
Upsetting Axle.....	50
Resetting Shoes.....	15
For Toeing and Setting.....	30
For a Set of New Shoes.....	1 00
Setting Wagon and Buggy Tire, per set.....	3 00
Front Hounds.....	3 00
Hind Hounds.....	2 50
Tongues.....	2 00
Bolsters.....	2 00
Singletree and Doubletree Ironed, complete.....	3 50
Dressing Mill Picks, each.....	20
Ironing Hames.....	3 00
Painting Carriages, Buggies and Jersey Wagons, according to the job..... from \$10 00 to	30 00
Two-horse Plow..... from 11 00 to	16 00
Small Plows.....	6 00
All other work in proportion,	

A comparison of the foregoing with the revised Dayton Tariff published in this number will be found interesting in many respects.

To the above he adds his prices for new work, as follows:

PRICES OF NEW WORK.

Two-horse Wagon.....	\$125 00
Pair-horse Wagon.....	150 00
Jersey Wagons.....	125 00
Buggies.....	150 00
Buckboards..... \$50 00 and	60 00

PEN SKETCH OF A LADIES' PHAETON ON FIFTH-AVENUE.

BY A REPORTER OF THE "NEW-YORK SUN."

AN equipage dashed up Fifth-avenue with a clatter and rumble. There was a team of blooded horses harnessed to an English vehicle that looked something like a Mail Phaeton. The horses were perfectly matched, beautifully built, and mettlesome and fiery. Their necks were arched, and as they threw their heads in the air the heavy chains that ran from the pole to their collars rattled musically. The harness was gold-plated, and the collars and reins were as white as snow. The phaeton had small wheels with many spokes, and was bottle-green in color. In the rumble behind sat a tiger in top-boots and tight-fitting coat. His arms were folded and he held his nose high in the air. He seemed to be a part of the vehicle. Directly in front of him and on one side of the seat was a beautiful Scotch collie, with silken ears and delicate paws. His nose was held in the air, too, and he seemed like a statue, except for the softness of his coat.

Beside him sat the driver. The toes of her tiny boots were pressed close together on the footrest at the foot of the dashboard, and she sat on her raised seat with an erectness that even the groom behind might have envied. It may be said that her finely chiseled nose was also held in the air. She was clad in an English jacket that fitted her superb form perfectly, and she kept her big eyes straight before her between the heads of her blooded horses. On her hands were gloves, with gauntlets that came above the elbow, with a crest worked upon the back of either hand. She held the reins well down, and balanced a long whip across them as the horses bounded along.

As the team dashed across Fortieth-street, two girls, who were walking down Fifth-avenue, saw the fair driver, and one of them waved her parasol and stepped to the curb. The lady in the phaeton turned her horses toward the curb, and drew them up with an abruptness that sent their heads four feet high in the air. The tiger slid from his place and stood at the horses' heads, and the driver exchanged a few words with the pedestrians. Then they all smiled and nodded, the driver touched her horses with the whip, and the tiger sprang aside as they dashed up Fifth-avenue. He jumped for the rumble, caught it apparently by the merest chance, resumed his statuesque pose, and folded his arms serenely. His mistress never looked around to see if he was there, and the nose of the dog was still high in the air.

CABMAN AND COMEDIAN.

My first fare was an old lady to the Royal Academy bound. She gave me a shilling and left her "Academy Notes" in the cab. I then prowled along Piccadilly, and picked up another very uninteresting shilling fare—a youth who wanted to go to Albert-gate. In the neighborhood of the place just named I was hailed by a gentlemen whose face—expressive of mingled merriment and anxiety—I well remembered, but whose name I could not bring to my tongue. He entered the cab and ordered me to drive across the park to Paddington station. *En route* I heard him singing "When other lips and other hearts," with the characteristic intonations of Mr. Sims Reeves, and for a moment I imagined that I had been fortunate enough to secure the greatest living tenor as a fare. But the melody was sharply transformed:

"On a well-loaded coach should I be,
Or wedged in a classical hansom,
The whole thing may smash—but not me,
On account of the magical ransom;" etc.

Yes, it was clear that I had the great Mr. Toole on board. He was mimicking Mr. Reeves as very few can, and singing snatches of "Paw Clawdian." I told him who was his driver when he alighted, whereupon he said that, although he was a Toole, he had not thought that he was being instrumentalized for the benefit of *The Pall Mall Gazette*. "Ah, well, don't chisel me out of the fare!" I said; "I want my screw, you know!" "Yes, I saw that you were a screw-driver," he answered with a wink—"that was plain, young shaver! Perhaps it will augur well for your inside if I ax you to supper at the Beefsteak Club instead of giving you the eighteenpence. You'll want a bit in stock, after a day on a hansom."—"An Amateur Cabby" in *The Pall Mall Gazette*.

CRITICS' CORNER.

[In opening this new department of our magazine, and requesting contributions, the Editor begs to remind correspondents that *criticism* means "the art of judging with propriety of the beauties and imperfections of a production." No mere fault-finder need apply.]

WHAT IS THE MATTER?

The December number of the *Western Carriage, Wagon and Materials Journal*, of Chicago, contains the following editorial:

What is the matter with our friend the *Blacksmith and Wheelwright*? While discussing the subject of "Ornamentation as Applied to Street-cars," a correspondent in *The Hub*, probably to give force to his argument, said that "only a blacksmith or wheelwright could have written such a blundering article,"—meaning evidently that he could not have been a painter. The *Blacksmith and Wheelwright* holds *The Hub* up to condemnation for making "such a sneering allusion to so large a body of intelligent mechanics" as the blacksmiths and wheelwrights. It is astonishing that any one knowing the liberal tendencies of *The Hub* could draw such unfriendly inferences.

In the same issue, the *Blacksmith and Wheelwright* pitches into this journal for having said in effect that bad streets and roads destroyed more vehicles than good streets and roads, when in its criticism, it admitted as correct about every assertion this journal uttered. Therefore we repeat—What is the matter?

NOTE.—In response to the inquiry of our Western contemporary, we beg to say that we find nothing serious in all this. Each of the periodicals quoted seems to have said its say, frankly and freely, on the subjects under discussion. Each had an undoubted right to do this; and, so long as unnecessary personalities were avoided, no one had any right to complain. *The Hub* certainly does not!

POPULARITY OF WAGONETS.

Coach, Harness and Saddlery, in its issue of Dec. 13th, responds as follows to our remarks in the December *Hub*, page 641, regarding the growing popularity of Wagonets. It says:

The Hub has introduced, under the head of its "Critics' Corner," what purports to be criticisms on various topics. *Coach, Harness and Saddlery* comes in for a notice in the December number, exceptions being taken to our statement that "the Wagonet is not likely to become a popular carriage, but there are localities where it will meet with favor." * * * * This censor says: "Wagonets have already asserted their right to be numbered among the popular vehicles of the day."

Have they, indeed? Well, has the assertion made them popular? If so, why is the sale so limited, and why is their use so restricted? If popular, would we not see them upon our fashionable drives? * * * *

Years ago *The Hub* attempted to show that "a place was ready for them as soon as they were ready to fill it." There was a place ready, and they have filled it, but not to an extent that proves them "convenient type of family carriage." The wealthy gentleman finds the Wagonet a convenient vehicle for use by the younger members of the family for picnics or free-and-easy trips along the country roads, where the whims or caprices of the riders may lead them to get out frequently. They also find a place among the convenient depot vehicles, where paterfamilias is to be escorted home by the younger members. They find another place among the seaside hacks. But these are all special uses, and but confirm our statement that "there are localities where it will meet with favor."

That they are to be found in "every well-stocked city repository" is no proof of popularity. "Every well-stocked city repository" contains one or more vehicles of every class that is likely to sell, or that will serve to give a variety to the stock on the floor.

The Wagonet is not, nor do we believe it ever will be, a popular vehicle for family or pleasure purposes, notwithstanding *The Hub's* efforts to popularize them; but, like the omnibus and the country cart, it will be adopted for special uses, and a limited number can be disposed of for the uses we have designated.

NOTE.—We feel quite satisfied to leave the subject where *Coach, Harness and Saddlery* has placed it.

Let but the reader remember that, up to 1880, the Wagonet method of seating was almost unknown in this country, excepting in connection with omnibuses and street-railway cars, and then observe the above intelligent remarks upon special uses for which our critic now recommends it, and it will be seen that the Wagonet has made that place for itself which we so confidently predicted in Volume XXIII (April, 1881, to April, 1882). That volume was largely devoted to the subject, containing a large amount of descriptive letter-press, and also twenty-four fashion plates of foreign designs. Many of these designs were reproduced by our American carriage-builders, and from them have been developed many variations, better adapted to the needs of the American public. From an alien in 1880, the Wagonet, in this year of our Lord 1885, has become a thoroughly domesticated American vehicle; and we need no further proof of this than the article we have quoted.

The writer of that article asserts, and with apparent justice (in a long paragraph which we have omitted), that it is not a popular

park carriage. Granted! It never claimed to be, and we never claimed that of it. The points which we did claim for it in 1882, we now reassert. Here they are, just as we expressed them in our January number, 1882 (we quote):

"1st. The Wagonet is capable of infinite variations of size and pattern, so that it may easily be adapted to the needs of all classes of buyers, so far as seating capacity, style, and expensiveness or economy are concerned.

"2d. The Wagonet is *the family carriage, par excellence*, being commodious and convenient, and affording easy and safe entrance and exit.

"3d. Its construction is such that it may be built light and strong, and at the same time accommodate numerous passengers; and the position of the burden in relation to the gearing is such as to insure the easiest possible draught."

Has *Coach, Harness and Saddlery* any desire to combat these claims? We imagine not.

PROBLEM DEPARTMENT.

[This new department has been opened in compliance with the request of a valued contributor. Correspondence is requested.—EDITOR.]

CENSUS OF AMERICAN CARRIAGES AND CARRIAGE-MAKERS.

WE have recently received a number of letters asking us to name the number of carriage-makers now doing business in the United States, together with the number of vehicles annually produced by them. These are facts which have never been gathered, even in the Census Reports; but we know of no one who is in a better position to give a reliable guess in this line than our friend Mr. Wm. N. Fitz-Gerald, editor of *Coach, Harness and Saddlery*; and, in reply to the inquiries of our correspondents, we therefore take pleasure in presenting below certain extracts from an editorial by him, dated Dec. 20, 1884, which include the most reliable data on this subject with which we are acquainted:

The census report of 1880 puts down the carriage and wagon manufacturers at less than 4,000, and wheelwrights at about 11,000—a total of 15,000. This is much under the actual number—say 2,000, at least—making the total 17,000, the annual product of which was put at \$83,834,488.

The shortage of 2,000 names would undoubtedly produce a shortage in the value of products, which, without doubt, aggregated \$90,000,000 at that time. The output for the year 1884, on that basis, would be less than \$55,000,000. If we average the value at \$100 each, the product would be 550,000 vehicles.

The actual number of vehicles in use can only be estimated, but some idea may be formed by locating their use. There were, in 1880, 4,008,907 improved farms, and two vehicles to a farm would be a low estimate, putting the number of vehicles at 8,017,814. There were also 15,303 livery stables; and five vehicles to a stable would net 76,515 more. There were 286 cities whose aggregate population was about one-quarter the entire population of the country; a vehicle to every twenty would give 600,000 more. Taking the balance of the population—20,000,000 in towns and villages—and placing a vehicle of one to twenty inhabitants, gives 1,000,000, showing a grand aggregate of 9,694,329 vehicles, equaling the product of sixteen years. Twelve years is the estimated life of a vehicle; if this is so, the product has fallen about 25 per cent. below the actual waste, all of which will have to be made good at no distant day.

* * *

We add below Mr. Fitz-Gerald's deductions from the foregoing figures, as to the probable future demand in respect to vehicles. He says:

The supply on hand is undoubtedly much short of the requirements of a year, which, at the low estimate made, would necessitate 35 vehicles as the average number in the hands of every man engaged in their manufacture and sale. To keep up the supply to the present wants would require a production in excess of that of the present year, while the reserve to be drawn upon is less by far than it was one year ago.

Admitting that the present demand has little of encouragement for the future, the reduced stock has placed the trade in a position where a moderate call would necessitate immediate activity in the manufacturing department, and we can but feel that the opening of the new year will bring with it a change for the better in every department of trade.

There will be no boom, but a steady market, one that will consume what we produce without encouraging expansion by manufacturers, which will insure a steady and growing trade, and lead to a return of the prosperity so marked in times past.

SCIENCE is a first-rate piece of furniture for a man's upper chamber, if he has common sense on the ground floor. But if a man hasn't plenty of good common sense, the more science he has the worse for his patient,—Holmes.

WHAT DOES INSURANCE COVER IN A CARRIAGE FACTORY?

THE above is a question in which every carriage, wagon and sleigh-builder ought to take a lively interest, even though he is in no immediate expectation of its being presented to him in letters of flame. The time to make suitable preparation for a fire is *now*! The time to prepare for satisfactory insurance adjustment is the month before your policies are to be drawn. Several valuable hints in this connection are presented in the following editorial, reproduced in full from a recent number of *Coach, Harness and Saddlery*, to which we invite careful study:

The adjusting of losses arising from fires in carriage factories is in most cases extremely annoying, and the insured is the loser, and he never after feels that confidence in the integrity of an insurance company that he did prior to his "trial by fire."

The question naturally arises, Who is in fault? None can blame an insurance company for guarding against impositions, and their adjusters meet with so many suspicious circumstances that they become prone to look upon the insured as a man who has sold out a stock of goods to an insurance company at a large advance over its real value. The insured, if they have had prior experience, look upon the adjuster as a man who is specially employed by an insurance company to devise ways and means for cutting down the losses to the smallest possible figure, regardless of the rights of the insured under his policy, and when the parties meet to determine the losses, their suspicions cause them to feel their way carefully and to contest every possible point.

There are two prominent causes for this unfriendly feeling. The President of an insurance company states that the "moral losses far exceed the actual,"—or in other words, the accidental fires are less numerous than the intentional or careless ones. The existence of this feeling engenders distrust, and not without cause, and the insured soon finds he is regarded with suspicion, and little is done until the parties have overcome the unpleasantness arising from mutual antagonism.

Carelessness or ignorance in drawing the policies is, however, the main cause, and, as the insured is held to the letter of his agreement, he is exceptionally fortunate if his losses are all made good. The burnt portion causes no trouble; the real trouble is in determining the damages to the vehicles not destroyed; and, unless the policy is so drawn as to cover damage in whatever form, it is impossible to secure an equitable adjustment.

In drawing a policy, therefore, the carriage-maker should remember that it is impossible to escape loss if the building becomes filled with smoke; if the vehicles finished or in process of finishing are removed, the higher the grade of finish the greater the loss; a slight scratch upon a panel may appear insignificant to the insurance adjuster, but to the carriage-maker it means the removing of the paint and repainting the job, or, at the least, the rubbing down of the varnish and applying another coat.

Heated smoke passing through a room filled with carriages, works a damage even though the vehicle is not subjected to its influences a quarter of an hour. The smoke, in addition to the heat, carries with it soot, which deposits upon every place that it comes in contact with, and this deposit works damage; the fine cloth lining, the silks, metal work, leather and paint are all damaged. A man who is not an expert may honestly fail to realize the full extent of the damage, particularly at the time, as the adjustment is generally made when the surroundings are the most unfavorable; and, unless provision is made for damages of this kind, the entire expense of putting the goods in marketable condition falls upon the manufacturer. Another fruitful source of trouble is the liability regarding the work on storage or for repairs. Many manufacturers insure their customers' goods by a general policy, but so much trouble has grown out of this that the feeling is becoming favorable to a different policy, some favoring the taking out of a special policy, covering work in repairs or on storage, leaving it optional with the owner of the vehicle to pay a premium and become entitled to a share of the insurance. Others insure each individual vehicle, while others still refuse to insure at all, but make arrangements with insurance companies to write policies for owners, covering the time the vehicle is at the carriage factory.

The whole question is complicated, and in view of the interest taken we invite correspondence upon insurance, believing that in a business point of view there is no more important subject before the trade.

* * *

The Hub offers a similar invitation for correspondence on this subject. Records of past experiences, favorable or otherwise, together with suggestions founded upon such experiences regarding the best methods of drawing policies so that they may cover just demands and prove equitable to both parties to the agreement, will be especially valued.

AMERICAN PATENTS PERTAINING TO CARRIAGES GRANTED DURING DECEMBER, 1884.

COMPILED BY HUNTINGTON & HUNTINGTON.

THE following patents, of interest to the carriage trade, were issued by the United States Patent Office between Dec. 2d and Dec. 30th, 1884:

DECEMBER 2d, 1884.

Axle Gauge.....H. McQuarry...Allandale, Ontario, Can.
Axle-setting Machine.....L. M. Woodcock.....Auburn, N. Y.
Vehicle Fifth-wheel.....F. P. Stone.....Chicago, Ill.
Shaft Support.....W. H. Miller.....Providence, R. I.

Sleigh Knee.....C. E. Belknap....Grand Rapids, Mich.
Vehicle Spring.....T. Lumsdon.....Marion, Va.
".....W. VanAnden,¹.....New-York City.
Vehicle Wheel.....A. E. Butler.....Reading, Mich.
".....C. E. Pratt,².....Boston, Mass.
Vehicle Wheel Clip.....R. Meloy.....Memphis, Ind.
Wagon Body.....E. C. Sawyer.....Beverly, Mass.
Wagon Jack.....W. G. Boughton.....Frostburg, Md.
Wagon Standard.....J. M. Roberts and
B. W. Case....Brownsville, Dak.

DECEMBER 9th, 1884.

Axle Lubricator.....C. H. Cummings.....Providence, R. I.
Brake Block.....J. A. Allen.....Cincinnati, O.
Child's Carriage Brake.....M. R. Dillin.....Philadelphia, Pa.
Sleigh.....A. Schoeninger.....Lake View, Ill.
Thill-coupling.....J. S. Hendrickson.....Olmstead, O.
Tire Tightener.....R. Ruffin,³.....Como, Miss.
Vehicle Brake.....T. J. Scott,⁴.....Ashland, Miss.
Vehicle Running-gear.....H. Mankel, Jr.....McKean, Pa.
Two-wheeled Vehicle.....W. S. Frazier and
M. G. Stolp,⁵.....Aurora, Ill.
Wagon Brake.....C. F. Best.....Queens, N. Y.
Buckboard Wagon.....C. B. Haynes....North Adams, Mass.

DECEMBER 16th, 1884.

Brake Shoe.....A. R. Bidwell.....Greenville, Cal.
Rein-holder.....C. C. Barr.....Mechanicsburg, O.
Thill-coupling.....H. W. King,⁶.....Canaan, N. Y.
Vehicle Brake.....C. W. Fox and
W. A. Wenmoth...Morris, N. Y.
Side-spring Vehicle.....W. J. Wayne.....Decatur, Ill.
Vehicle Stake-holder.....L. D. Fuller.....Charlton, Mass.
Two-wheeled Vehicle.....D. D. Weisell.....Fort Wayne, Ind.
Wagon Bolster.....Z. A. Benell.....Fredonia, Kan.
Side-bar Wagon.....G. D. Selby.....Portsmouth, O.

DECEMBER 23d, 1884.

Carriage Fender.....L. H. Wooden.....Hamstead, Md.
Detachable Back for Carriage }
SeatsR. E. VanCampen.....Ashtabula, O.
Carriage Wheel.....W. K. Foster.....Stoneham, Mass.
Wagon End-gate.....W. H. Clarke.....Olean, N. Y.
Fifth-wheel.....H. W. Moore....." "
Vehicle Hold-back.....W. G. Cummins...McMinnville, Tenn.
Horse-detacher.....W. G. and J. H. Cummins,
.....McMinnville, Tenn.
Machine for Bending Carriage }
PolesA. G. Snyder.....Piqua, O.
Machine for Bending Shafts...A. G. Snyder....." "
Rein-holder.....H. Fisher.....Canton, O.
Sled Brake.....G. H. Chapman.....Rochester, Minn.
Thill-coupling.....W. J. Card.....Olean, N. Y.
Jump-seat Vehicle.....F. A. Sands,⁷.....Salisbury, Mass.
Vehicle Running-gear.....R. W. Davis.....Elmira, N. Y.
".....B. C. Shaw.....Toledo, O.
Vehicle Seat.....J. Hanser,⁸.....Oxford, O.
Vehicle Wheel.....B. Schad and
G. Hoffman,⁹...Lockport, N. Y.
Wagon Running-gear.....S. Perry, Newport, N. Y., and
D. A. Sprague....Poland, N. Y.

DECEMBER 30th, 1884.

Axle Gauge.....R. A. Simpson.....Ferndale, Cal.
Vehicle Axle.....H. Olson.....Olesburg, Kan.
Carriage Top-joint.....T. F. VanLuven..Kingston, Ont., Can.
Gig-tree.....T. F. Hutzler and
J. Heinzmann, Ann Arbor, Mich.
Sled.....N. B. Peterson.....Seattle, Wash. Ter.
Thill-coupling.....W. Johnston,¹⁰.....Menominee, Mich.
".....J. H. Koons,¹¹.....Waynesboro, Pa.
Thill Support.....A. B. Smith.....Manchester, N. H.
Truck.....M. J. Barron and
J. F. Curren,¹².....Joliet, Ill.
Shifting-rail for Vehicle Seats...P. B. Fuller.....Union City, Pa.
Vehicle Spring.....H. J. Schild.....Stanton, Mich.
Vehicle Umbrella Holder.....C. A. Floyd..Eastbourne, Sussex, Eng.
Wagon-body Lifter.....O. Slagle.....Greenfield, O.
Wagon Hound Coupling.....T. W. Brian.....Parkville, Ill.
Wagon Standard.....S. Moore and
L. C. Burling.....Amita, Iowa.

¹ Re-issue.

² Assignor to the Pope Mfg. Co., Hartford, Conn.

³ " of one-half to Wm. Ruffin, same place.

⁴ " to himself and W. A. McDonald, same place.

⁵ Said Stolp, assignor to said Frazier.

⁶ Assignor to himself and T. S. Smith, Canaan Four Corners, N. Y.

⁷ " of one-half to F. A. Babcock, Amesbury, Mass.

⁸ " of one-half to G. W. Meyer, same place.

⁹ Assignors by direct and mesne assignment to L. J. Hoffman, same place, and John P. Schad, Batavia, N. Y.

¹⁰ Assignor of one-half to P. Q. Stoner, same place.

¹¹ " of one-third to S. L. Lecron, same place.

¹² " of one-third to T. Middleton, same place.

Copies of the foregoing patents will be sent to any address on the receipt of order, with 50 cents for each patent, by Huntington & Huntington, 156 Broadway, New-York City.



POSTAL-CARD ANSWERS TO CORRESPONDENTS.

To C., Montreal, P. Q.: Yes; send your name and \$2.00 to the principal of the Technical School in this city, and you will be admitted to the Corresponding Class.

To P., Chicago, Ill.: If you succeed in getting out whole at the end of the year on carriages taken in trade, that is all our best builders in this city try to do; and you have reason to congratulate your salesman.

To T. E. and O. L. M., Demopolis, Ala.: We will gladly answer your inquiry "What do you mean by the article on page 638 of the December *Hub*," if you will kindly particularize the article. There are three of them.

To E. S. F. & Co., Amesbury, Mass.: The open public carriages used in Central Park, in this city, were partly built by J. M. Quinby & Co., of Newark, N. J., and partly by Meyer & Jacobson, corner Fourth-ave. and 88th-st., New-York City.

To B., Corning, N. Y.: Your question is fully covered by the rule we have so often recommended that our subscribers adopt, namely: "Have no money transactions with strangers!" We long ago learned by experience with the perennially stranded sailor who creeps into the office with a box of Havanas under his coat, which have escaped duties, and are offered at a phenomenally low figure, that bargains with strangers are pretty sure not to be bargains for the buyer. In regard to the case you refer to, our advice is: Don't!

INQUIRY FOR CARRIAGE-MAKERS' TOOLS.

TOLEDO, O., Dec. 18, 1884.

EDITOR OF THE HUB—DEAR SIR: Can you inform us where we can procure a full set of routers, body knives, and also a full set of English chisels?

CARR & BURDOO.

ANSWER.—Messrs. Cassebeer, Reed & Co., of No. 229 Bowery, New-York City, make a specialty of all such carriage-makers' tools as you mention; and they have an illustrated catalogue and price-list which they will mail to you on application.

REPAIR TARIFF FOR SLEIGHS WANTED.

—, N. Y., Jan. 4, 1885.

EDITOR OF THE HUB—DEAR SIR: I have had inquiries from different parties outside the city and State, as to whether I had seen a printed list of repairs of cutters and sleighs.

I knew of your buggy tariff of repairs, but I have never seen any referring to cutters and sleighs. Would it not be well to get up something of this kind, by soliciting figures from your many correspondents in the business? I ask this to see the many benefited, and to bring about greater uniformity in prices and a unity in interests among carriage and sleigh-builders.

You need not use my name in the matter, but I think it would be well to work up the scheme.

Yours truly,

C.

ANSWER.—The above suggestion meets with our hearty approval.

In all such matters, the hardest part of the work consists in making a fair start. If, therefore, our correspondent will kindly start the ball by forwarding us a list of all the items he would like to see quoted upon, at the same time naming his own prices (which will of course be dealt with as anonymous), we will take pleasure in following up the subject, and in gathering as many facts and figures concerning it as we can.

In the meantime, we shall be happy to receive similar sample lists from any of our readers who may also feel an interest in this subject, the importance of which must be evident to all who have any experience in sleigh repairs. Next!

A CALL FROM NEW SOUTH WALES FOR AMERICAN GOODS.

MESSRS. JONAS WOODHEAD & SONS, coach iron-mongers, Bradford, Eng., and Sydney, N. S. W., write as follows from their English headquarters:

COACH, SPRING AND AXLE FACTORY, WESTHOLME WORKS,
THORNTON ROAD, BRADFORD, ENGLAND.

EDITOR OF THE HUB—DEAR SIR: We have pleasure in handing you post-office order, value 12 shillings, for one year's subscription to *The Hub*, which we

require to be forwarded to our Australian house, No. 42 Market-st., Sydney, N. S. W. Kindly send all the previous numbers for this year to our friends in Sydney, as they have written to us for ours, but we cannot spare them.

We have lately opened a store at the aforementioned address, where we keep a most complete stock of goods which we manufacture at our works, such as carriage springs, axles and ironwork; and in addition to these we intend keeping a large stock of American goods, namely: wheels, spokes and forgings; so if you could recommend any good houses to our notice, we should feel very much indebted to you. If you think proper, you can publish this letter in your esteemed monthly.

Thanking you in anticipation of your kind reply, we remain, dear sir,

Yours very truly,

JONAS WOODHEAD & SONS,

per Tom Woodhead.

NOTE.—Here is one of those opportunities to which we take special pleasure in inviting the attention of every reader who is interested in the extension of a foreign demand for American carriage materials. Please send copies of your illustrated catalogues to both the English and Australian offices of Messrs. Woodhead & Sons.

A WAGER.

SOUTH-BEND, IND., Jan. 2, 1885.

EDITOR OF THE HUB—DEAR SIR: Please to decide a wager. Is Mr. W. R. Connor employed by you, or by Messrs. Healey, Williams & Co.? Please answer through the next *Hub*, and oblige

A SUBSCRIBER.

ANSWER.—By Messrs. Healey, Williams & Co.

SHOULD TRADE SECRETS BE THUS GIVEN AWAY?

A NEW-HAVEN correspondent has addressed us under date of Jan. 10th, saying:

"The article in your January *Hub* on varnishing (see page 697: 'How to Produce a Clean Finishing Coat of Varnish'), seems to me one of the most valuable for the painters that ever appeared in *The Hub*. It might be thought by some that it was unwise to give away in this full and public manner trade secrets of such importance and value, known only to the few; but you have no doubt considered this; and I, for one, fully approve of your course. We look for information to such journals as *The Hub*, and in this case you have certainly given it."

ANSWER.—These secrets of the trade, above referred to, were presented to us for publication by a New-York varnisher, and we took great pleasure in making them public. We have no sympathy with the desire of any trade to "keep it dark," for we believe any effort in that direction to be quite out of place in this age of enlightenment. Every editor receives communications which he is bound to deal with as strictly confidential, whether so requested or not; but in this instance the article was written and intended for publication; and our correspondent's remarks strike us as the best seal of approval which it could possibly receive. We only hope that the article has been carefully studied by all our readers who are interested in the mysteries of varnishing, and that they may be able to utilize the trade secrets thus made public by us, to both their own and their employers' benefit.

FREE-HAND DRAWING IN AMESBURY.

AMESBURY, MASS., Jan. 6, 1885.

EDITOR OF THE HUB—DEAR SIR: I have read with special interest the last Official Circular of the School Committee on Technical Education, on the subject of free-hand drawing.

We have had a case here quite to the point. A Y. M. C. A. has been organized, and one of the evening classes under its management was to be devoted to carriage designing. I was approached on the subject, and I replied that it would be commencing at the wrong end, as free-hand drawing ought to come first. They demurred, saying that the young men would not like that course, as they wished to go at once into carriage drafting. I stated that if they had neither a natural nor acquired taste for free-hand work and practice, they might as well go no farther. I hear that a free-hand class is to be established.

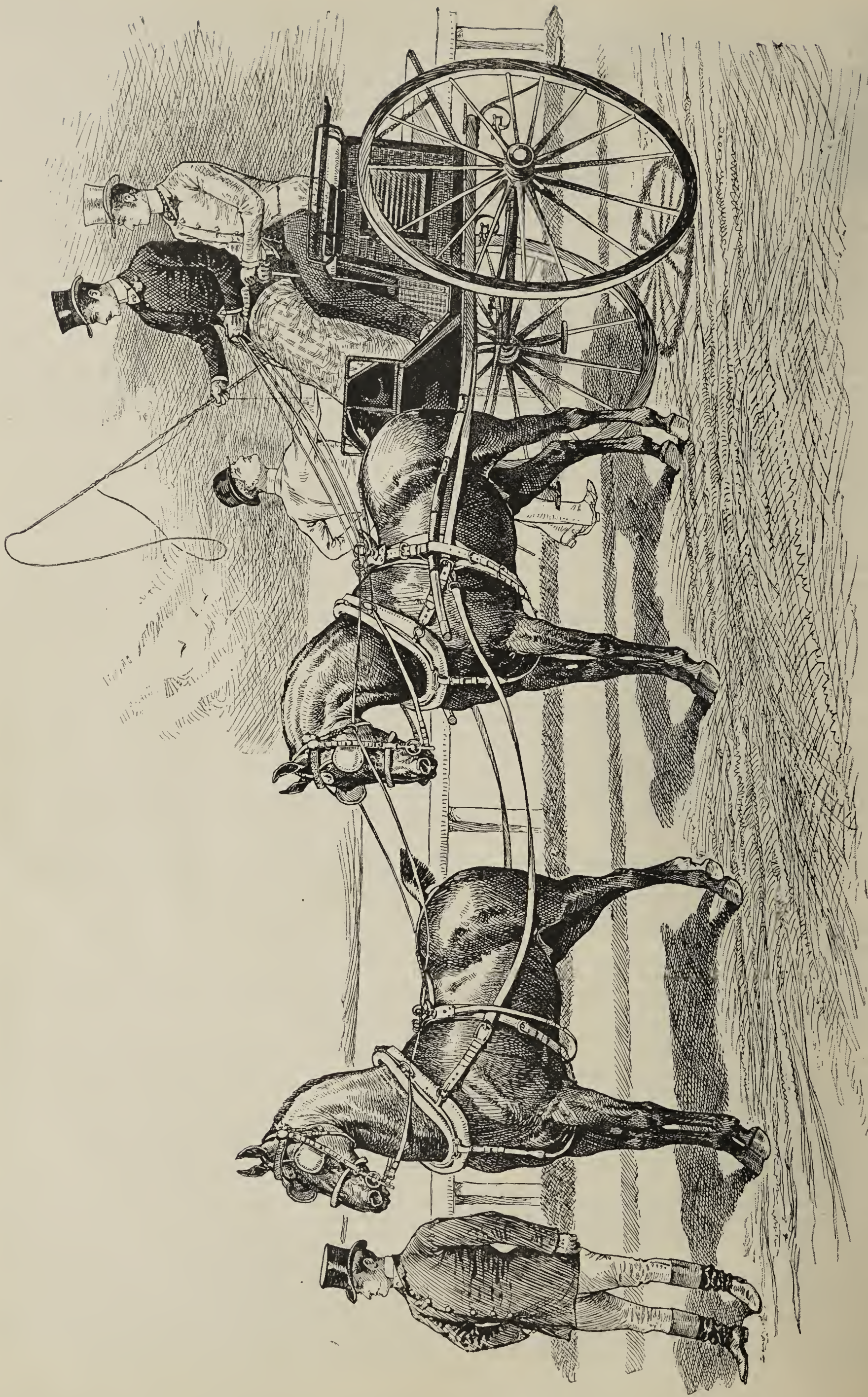
Please send me twenty-five or more circulars, and I will distribute them.

Yours truly,

F. H. D.

NOTE.—We have been happy to receive the above and many other similar evidences that the committee's circular on "Free-hand Drawing" has met with the approval of the trade, and concentrated attention on a subject that is too often overlooked in efforts, otherwise commendable, to instruct the working classes in the use of the pen and pencil. The principles therein laid down must, we think, commend themselves to every thoughtful observer who has had any experience in this direction. The freshest pupil is always most courageous to attempt the biggest jumps; but the top rounds of the ladder are not reached in that fashion, and it is the teacher's duty to understand and explain this.

PULLMAN cars are great comfort to travelers in Mexico. The wise bandits never bother the passengers. They go for the porters.—*Philadelphia Call*.



READY FOR THE ROAD.—By GRAY-PARKER. From "LIFE."

CLARKSON'S EXTENSION-TOP PHAETON, WITH AUXILIARY CHILD'S-SEAT.

(See Two Views in Fashion Plates Nos. 91 and 92).

THE introduction of this Extension-top Phaeton with an auxiliary seat, by Messrs. F. A. Babcock & Co., of Amesbury, Mass., would seem to supply a long-felt want on the part of the public. Children's-seats have often been attached to such phaetons, but this offers accommodation for a grown person, and is also superior to others by reason of the novel fixtures for raising and lowering it. As will be seen on the drawing, the seat is attached to the front seat in such a manner that, by a forward movement of the front seat, the other is raised, and likewise lowered when the front seat is brought back to its original position.

The iron post on the front seat at the rear is placed outside, and is stationary. The goose-neck iron of the front section of the top is attached to this upright. Another advantage of this mode of working the auxiliary seat is, that it dispenses with the need of front legs, which often prove a source of annoyance by the loosening of the hinge-joints, and consequent rattling. This seat is equally adapted for Coupé-Rockaways without division front.

The general appearance of this vehicle is stylish and attractive. The sides of the rear seat are of large dimensions, and afford comfortable seat-room. Two drawings are introduced, one showing the auxiliary seat elevated, and the front seat thrown forward; while the other shows the auxiliary seat lowered, and the front seat in its normal position. We would add that the sketches and measurements, by aid of which our plates were produced, were kindly furnished by the builders, Messrs. F. A. Babcock & Co.

Dimensions.—Width of body on top, in front of the rear seat, 43 in.; ditto, rear on top, 40 in.; ditto, bottom, 34½ in.; ditto, front seat on top, 40 in.; and ditto bottom, 37 in. Dash, 30½ in. Turn-under, 5 in. Rocker-plates, 2 × ¾ in., fastened with 1½ in. Nos. 14 and 16 screws. Height of wheels: front, 2 ft. 11 in., and rear, 3 ft. 11 in., without the tire. Depth of rims, 1¼ in. Size of spokes, 1⅜ in. Number of spokes, 12 and 14. Stagger of spokes, ⅝ in. Hubs, 4¼ in. diameter. Front bands, 2¾ in., and back, 3⅛ in., inside diameter. Length of front bands, 1½ in. Length of hubs, 6½ in. Tire, 1 × ⅜ in., round-edge steel.

The front spring is elliptic, 36 in. long, from out to out, with 9 in. opening over all. Width of steel, 1½ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart, 3¾ in. Size of holes, ⅝ in. The rear springs are elliptic, 35 in. long, from out to out, with 8 in. opening over all. Width of steel, 1¼ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last one No. 4 steel. Holes apart on the top half, 3½ in. Size of holes, ⅝ in. Axles, 1⅛ in. Track, 4 ft. 10 in., from out to out.

Finish.—Painting of the rockers and moldings, black; and seat panels, dark green. Gearing, green, striped with two fine lines of carmine. Trimming, green cloth throughout. Carpet, green, with red figures. Mountings, silver.



TRADE NEWS.

NEW-YORK CITY.

PERSONAL.—Mr. Frank H. Taylor has left New-York for Chicago, where he becomes resident agent for Murphy & Co., varnish-makers.

THE THIRD ANNUAL ENTERTAINMENT AND RECEPTION of the John Stephenson Co. Mutual Aid Association was held at Lyric Hall, in this city, on Saturday evening, Jan. 10th. It was well attended, and proved a highly enjoyable occasion.

PERSONAL.—Mr. Chas. F. Hopwood, after an extended experience with Valentine & Company, has made an arrangement with Hildreth, Templeton & Co., varnish-makers of this city, to represent their interests in the carriage trade. Mr. Hopwood has our best wishes for his success.

A MORE HOPEFUL FEELING.—Under date of Jan. 17th, *Coach, Harness and Saddlery*, of this city, says: "Since New-Year, business has noticeably improved in a number of lines, but it is hard to tell how much of the improvement is due to orders that were held back during the holidays, and are now sent in to swell the every-day demand. The feeling among business men generally is much more hopeful than it has been."

TRADE EMBARRASMENTS.—*Bradstreet's*, during the past thirty days, has reported the following embarrassments on the part of members of the carriage and accessory trades: N. Peterson, wagon-maker, Antioch, Cal., attached for \$1,200. O. J. Wilson & Co., blacksmiths and carriage-makers, Earlville, Ill., confessed judgments for \$3,122 and gave chattel mortgages for \$8,000 and realty mortgages for \$39,700. C. T. Randolph, coach-maker, Washington, N. C., assigned. W. H. Shellman, wagons, Oneonta, N. Y., assigned to W. L.

Brown; liabilities, \$8,000. Vallier Brothers, carriage-makers, Anson, Me., in insolvency. B. F. Hall, wheelwright, Marion, Mass., closed by sheriff. Chester E. Albright, carriage manufacturer, Muncy, Pa., sold out by sheriff. S. G. Derry, manufacturer of carriage-top dressing, Providence, R. I., assigned. R. Dawson, wagon-maker, Aylmer, Ont., assigned. W. F. Doorley, carriage manufacturer, Harper, Kan., failed. J. R. Wells, carriage-maker, Montgomery, Ala., failed. Assets small. A. Jacobs, wagon-maker, San Jose, Ill., failed, and succeeded by his brother. George H. Pennell, carriage-maker, Loysburg, Pa., marshall's sale advertised. George Gagne & Frere, wagon-makers, Sherington, P. Q., assigned.

NEW-YORK STATE.

PERSONAL.—Mr. Penn, of Messrs. Penn & Lee, Syracuse, N. Y., has recently been in the West and taken some orders for springs.

CHANGE.—The firm of Wills, Horne & Co., of Auburn, N. Y.; has dissolved, and the business will be continued under the style of Wills & Horne.

FIRE, FIRE!—Esra Burdick's blacksmith shop and David Herrington's carriage shop, at Easton, Washington County, N. Y., were burned on the night of Jan. 12th. Loss, \$3,000; insured.

CATALOGUE.—We take pleasure in acknowledging receipts of a catalogue from J. W. Manneer, of Rochester, N. Y., which is very comprehensive, and contains illustrations and prices of tools and supplies of all kinds for machinists, carriage-smiths, etc.

ENTIRELY NEW.—Such is the "Edward Storm Old Comfort Lawrence," a four-passenger body, roomy, yet stylish in appearance, that is just out. The Edward Storm Spring Co., Limited, of Poughkeepsie, N. Y., are prepared to fill orders for this new style, hung on the Storm springs. It is made by this company alone.

NEW.—Messrs. E. & J. C. Covert, of Farmer Village, N. Y., have issued a neat new catalogue, in which they say: "Destroy all former catalogues, and order goods by the numbers herein designated;" which is the same as saying: "Send for our new catalogue!" All desiring to keep well posted should do so at once.

OMISSION.—Referring to the advertisement of Mr. Wm. Lockwood, of Madrid, N. Y., which appeared in our January issue, it will be found that the Gananoque Gear Co. should be the Gananoque Carriage Company; and Mr. Lockwood omitted to add that his gear is also built for the trade by the Milburn Wagon Co., of Toledo, O.

NEW-ENGLAND.

AT QUINCY, MASS., Messrs. Terrell & Sons and Jas. R. Wild both report trade for 1884 good.

AT KEENE, N. H., C. M. Tottingham and Mr. Frank French both report a fair trade in sleighs.

TOBOGGANING has become an American sport. A club has been organized at Springfield, Mass., but thus far there has been no snow there.

NO SNOW.—There was no snow about Boston and vicinity up to Jan. 1st, and carriage-makers having sleighs on hand were consequently not happy.

REMOVAL.—On Jan. 1st, Francis Sargent & Co., of Boston, Mass., removed their carriage repository to No. 72 Sudbury-st., nearly opposite their old stand.

AT HOLYOKE, MASS., while trade has been only fair as a whole in the State, Messrs. Fenton & Dunn and Keough Brothers have been busy on jobbing and had a good trade in new work. Both report a good business for 1884.

FIRST CROP.—Mr. James Hume, the well-known carriage-builder of Amesbury, Mass., kindly addresses us in the following words: "Go on and prosper! Out of the ashes of the past, your first crop is greatly improved."

HORACE JOHNSON, of Plainville, Ct., has rebuilt on the site of the factory formerly occupied by the Condell, Mastin & Butler Co., using their show-room, which is as fine a repository as is often found in the country, with large plate-glass windows, etc. He reports a good trade for 1884.

THE HARDWARE DUDE.—Mr. Chamberlain, the efficient and popular representative of H. D. Smith & Co., of Plantsville, Conn., is now jocosely known by the "boys" as the "Hardware Dude." As Mr. C. looks more like a staid Illinois farmer than a dude, the pleasantry will be appreciated.

TRADE REPORT FROM AMESBURY.—Mr. S. R. Bailey, of Amesbury, Mass., writes as follows under date of Jan. 9th: "The carriage men here seem to be starting in this month with considerable confidence. I propose to build more sleighs this year than last, and I have not the least doubt but that I can find a market. Amesbury, by the way, bids fair to become quite a sleigh town."

ELMER P. SARGENT, Boston, Mass., has taken an office with Francis Sargent & Co., No. 72 Sudbury-st., nearly opposite their old stand, where he offers to the trade a fresh stock of carriages, sleighs, harness, etc., at prices to meet the times. He will give special attention to fine work to order, and will also have the agency of one of the best makers of heavy work, at manufacturers' prices.

A BOOM ON THE BARKER LINE.—Mr. John Brill, foreman with Messrs. Henry Hale & Co., of New-Haven, Conn., writes as follows: "We are now applying the Barker or curved line for the corner-pillars of bodies exclusively, and are hardly able to fill the demand. In several instances where the bodies were not in a too advanced state of construction, the corners had to be changed from square ones to curved. All hands are now working full time."

A FAMILY FIRM.—The firm of W. G. Shepard & Co., the well-known wood-benders of New-Haven, has been changed to H. G. Shepard & Sons. At the time Mr. W. G. Shepard started the business he was only eighteen years of age, but he and a younger brother promptly demonstrated their ability to satisfactorily supply a public demand, and secured a good local trade. Their father afterward joined the firm, and the sons have always insisted that his name should lead in the firm title, which has, therefore, been changed to read that way.

TRADE REPORT FROM MAINE.—In a letter from Mr. E. D. Moore, of the Royer Wheel Co., dated Manchester, N. H., Jan. 18th, he says: "I have been in Maine for the past two weeks. The sleigh trade has been poor all over the State, as there has been but little snow. I find the good carriage-makers had a fair business last year, and they are preparing to do about the same during the current year as formerly. The trade down East is more uniform than that of the West, although it is of course smaller. I have had, and am now having, a very fair trade, with good prospects for trade through February as I work westward."

PERSONAL.—*Coach, Harness and Saddlery*, of Jan. 24th, says: "A man may ride to fame on wheels. The late Phineas Jones went to Congress. Hobart Bigelow, of Holcomb Bros. & Co., was Mayor of New-Haven, and afterward Governor of Connecticut. Now, Geo. F. Holcomb, of the same firm, is Mayor of New-Haven. Henry G. Lewis, of the New-Haven Wheel Co., has been twice Mayor of New-Haven. E. E. Bradley, of the same company, has been Paymaster-General of Connecticut. B. A. Treat, of the Wallingford Wheel Co., has been Mayor of that borough for the past six years. Gentlemen, make wheels!"

WROUGHT BOXES.—It is now generally conceded by the trade, and especially by builders of fine work, that a wrought box is the only first-class box to use on an axle. This conviction is sure to grow in strength wherever the Dalzell & Ives wrought box is used. Both the Brewsters, Caffrey, Stivers, and many other representative builders consider it indispensable. Those who have not yet tried the box should do so. Its chief merits are lightness and strength, perfect finish, and great durability. This box can be obtained from any axle manufacturer who forges fine work, and the price will be found uniform wherever purchased. The Dalzell & Ives Wrought Box Co., of South Egremont, Mass., are desirous of supplying the box to all axle-makers who turn out fine work for the better class of trade.

MIDDLE STATES.

AS IT SHOULD BE.—The Lancaster (Pa.) *New Era* has a very appreciative article descriptive of the business of Edgerly & Co., of that city. They employ 35 hands, and turn out not less than 400 vehicles per year.

NEW DISCOUNTS.—The Dexter Spring Co., of Hulton, Pa., have, with the new year, made a few changes in discounts, and added some important matter to their catalogue, making it desirable for the trade to send for additional information, and thereby keep posted.

AXLES AWAY DOWN.—Smith, Sutton & Co., of Pittsburgh, Pa., it is reported, recently went into the Cincinnati market and took orders for axles at prices that were truly startling; and a spring-maker, it is said, also offered springs at 4¾ cents. The orchestra is tuning up, and lively music in the air is promised.

FIRE.—The carriage factory of John Lamb, at Mount Laurel, a small village near Moorestown, N. J., was entirely destroyed by fire on Tuesday night, Dec. 30th, involving a loss of several thousand dollars, which is partially covered by insurance. A considerable quantity of made-up stock was also burned. The origin of the fire is unknown.

PERSONAL.—At the recent funeral of Mr. Wm. D. Rogers, in Philadelphia, the following well-known gentlemen acted as pall-bearers: Messrs. Caleb Wood, Charles W. Potts, Henry Hill, Jesse Lee, Theodore Gray, Henry C. McLearn, Joseph E. Moore, Jr., Charles J. Thompson, Frank H. Hooker, Henry Killam, Wilder H. Pray and Rufus M. Stivers.

THE GOLDEN BUSINESS WEDDING.—Messrs. J. M. Quinby & Co., the favorably-known carriage-builders of Newark, N. J., were recently the recipients of a long and ably written review in the *Morning Register*, of their city, wherein it is stated that the firm can now celebrate their Golden Wedding, having made carriages for fifty years, and that they still occupy the same quarters in which the business was started in 1834.

OBITUARY.—Died, on Dec. —, at his home in Philadelphia, Pa., John Beggs, the veteran wagon-maker, aged 73 years. Mr. Beggs was one of the oldest wheelwrights in Philadelphia, and senior member of the wagon-making firm of John Beggs & Sons, of No 338 North Front-st. He was born in Ireland in June, 1811, and came to this country in 1833. After working as a journeyman wheelwright for several years he started in business for himself in 1839. In 1848 Mr. Peter S. Roland entered into partnership with him, and the firm became Beggs & Roland, remaining so until 1861. After the great fire of 1850 the establishment was removed to its present location, the firm having bought what was formerly the old Black Bear inn property for a building site. When Mr. Roland retired from the business in 1861, Mr. Beggs's eldest son entered the firm, which was then Beggs & Son, and so remained until his remaining three sons also joined him, and caused another change of name. During the war the firm made a great many wagons for the Union army. Mr. Beggs was always known as an intelligent and energetic mechanic, and was active in the trade until recently, when he was compelled by advancing years to relinquish all but the general supervision of the business.

WESTERN STATES.

FIRE.—E. Clapp & Sons' carriage works, at Battle Creek, Mich., were burned on Jan. 18th. Loss, \$10,000; insurance light.

FIRE.—The works of The Huron Wagon Co., Columbus, O., were burned on Jan. 17th. Loss, \$75,000; insurance, \$49,000.

FIRE.—The carriage works of L. A. Melburn, Denver, Col., were recently destroyed by fire. Loss, \$40,000; insured for \$22,000.

BORN BOOMING.—Mr. E. B. Born, of Allegan, Mich., is now full of business and courage, and proposes to increase his product to 1,000 new jobs during the current year.

PERSONAL.—Our last letter from Mr. A. C. Fish, of Racine, Wis., is dated Salt Lake City, and in it he says: "I am now on my way to the Pacific Coast to look after the carriage trade. If I find any items of interest, I will put them on wheels, and set them rolling toward *The Hub*."

A NEW AXLE-GAUGE has been patented by Rufus A. Simpson, of Ferndale, Cal. This invention covers a special construction and combination of parts in a gauge for accurately measuring the set and gather of a wagon wheel, and for use in indicating accurately the exact set and gather for iron and steel axles.

AN ILLUMINATED CHRISTMAS POEM entitled "The Wagon that Webster Built," by Mr. B. A. Webster, modeled after "The House that Jack Built," has been received from the Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich. Like all business announcements of this famous house, it is both attractive and pointed, filling all the conditions of a first-class advertisement.

RE-CHRISTENED.—The plant, buildings, machinery, etc., of the Cleveland Carriage Bow Co., of Cleveland, O., have been purchased by the Cleveland Carriage Goods Co., a new concern made up by those chiefly interested in the former company. The new organization will make specialties of the Selle gear, Eberhard crystal hub-band, and carriage hardware.

TIMKEN TESTIMONIAL.—Mr. Henry Timken, of St. Louis, proved himself a princely host at the last convention of the Carriage Builders' National Association; and the officers of that body, in compliance with the request of numerous of the members, have since presented him with a handsome testimonial, in the form of an engrossed scroll, fittingly acknowledging his many acts of courtesy and hospitality, and bearing the autograph signatures of all the executive officers. This timely and graceful tribute will, we feel sure, meet with the hearty approval of all those who had the pleasure of being Mr. Timken's guests in October last.

A LARGE ORDER.—Among the recent large orders taken by the Egan Company, of Cincinnati, O., was one for a complete outfit of improved wood-working machinery for the car-shops of the Baltimore & Ohio Railway at Glenwood, Pa. This order comprised nearly all the machines used in the manufacture of fine passenger coaches, and was secured after a spirited competition. This railway company showed their appreciation of the Egan Co.'s improved Universal Woodworker by taking two of them, one going to their shops at Mount Clare, which is another evidence of the high state of perfection to which this enterprising company have brought their goods.

SOUTHERN STATES.

BOUGHT IT OUT.—The Louisville Buggy Co. has been bought by Mr. E. E. Kerr, who will continue the business under the same name.

PERSONAL.—Mr. Geo. A. Ainslie, the well-known carriage-builder of Richmond, Va., was on Jan. 20th elected President of the newly organized Mechanics' Institute in that city.

A WORD OF APPRECIATION.—"The Hub has done good work for the trade in so fully exposing the Osgood Wood-Filler Fraud. It has collected a large and seemingly very condensed amount of evidence of his character, and it certainly will be his own fault if any one is now deceived by it or the process. One such piece of information may save the cost of several years' subscription. No man who wishes to keep up with the trade, or abreast of the business, can afford to be without one or more of the trade journals devoted to his particular kind of business. Nothing pays so well as to be well posted."—*Southern Coach-Maker*.

CANADA.

PERSONAL.—Mr. T. A. Hay, of the Bain Wagon Co., Woodstock, Ont., favored us with a call on Jan. 14th. He reports prospects favorable for a good spring trade in Canada.

FOREIGN.

A STRETCHER.—The stretcher designed by Mr. Wm. Philipson, and made by Atkinson & Philipson, of Newcastle-on-Tyne, Eng., received the highest commendation from medical visitors at the recent Health Exhibition in London.

SCOTLAND OBJECTS TO THE CARRIAGE TAX.—Mr. John Robertson and Messrs. James Henderson & Co., coach-builders of Glasgow, Scotland, have addressed to the *News*, of that city, vigorous protests against the present carriage tax.

THE CARRIAGE TAX.—Our English friends are still hammering away persistently at the carriage tax, and the *Glasgow News*, of Nov. 7, 1884, has a spirited editorial which sets forth the grievances of the carriage-builder in a strong light. We hope they may succeed in their righteous endeavors.

AMONG OUR CHRISTMAS REMEMBRANCES we take special pleasure in acknowledging receipt from Mr. John Philipson, of Messrs. Atkinson & Philipson, Coach-builders, Newcastle-on-Tyne, England, of the attractive illustrated volume, "Hand-Book to the Roman Wall," written by his father-in-law, Dr. J. Collingwood Bruce.

AUSTRALIA APPRECIATES GRAY-PARKER.—Messrs. Walker, Lemon & Co., of Melbourne, Australia, write as follows under date of Nov. 3d: "We shall be glad to have the copies you are to send us of Gray-Parker's drawing, entitled 'A Dash Through the Park,' as soon as possible, for they are meeting with a lot of favorable comment here wherever shown; and we would like to distribute them widely through our customers."

A RECOMMENDATION WORTH HAVING.—Mr. John Jones, the veteran coach-builder of Rickmansworth, Eng., writes to us as follows, under date of Dec. 29th: "I herewith send you money-order for a year's subscription to *The Hub*. At my advanced age (I am now in my 79th year), I shall transfer my business to my sons. I have been in business in this town 58 years, and think now I ought to retire. I will place the numbers of *The Hub* received in my sons' hands, and recommend them to continue."

TRADE REPORT FROM MELBOURNE, AUSTRALIA.—Messrs. Walker, Lemon & Co., dealers in carriage materials, of No. 12 Lonsdale-st., Melbourne, Australia, forward the following trade report under date of Nov. 3d. They say: "Business in our line continues very good, and as there is every probability of an abundant harvest, the outlook for the next season is very cheering. We notice *The Hub's* 'How's Trade' reports, and shall be pleased to correspond with you on this head should you wish it." We wish it heartily!

ELECTRIC LIGHT FOR CARRIAGES.—R. Harrison & Son, coach-builders to the trade, of No. 1 Stanhope-st., Euston Road, London, Eng., are prepared to supply an apparatus for fitting the interior of broughams with electric light, at £4 (\$20); and electric bells, for signaling the coachman, inclosed in portable case, and including bell, battery, push and silk cord, £1 1s. (\$5.25). They say: "The above are recommended as effective means of attracting attention to carriages, either in the show-room or at exhibitions."

LEGACIES TO TRADE SOCIETIES.—The will of the late Jonathan Barlow, coach iron-monger, of London, Eng., who died on Aug. 6th, 1884, contains the following: After making provision for his wife and step-mother and his manager, Mr. R. Burgess (who we understand has taken the business), the sum of £2,000 is to be divided equally among the following societies, viz.: the Master Coach-Builders' Benevolent Institution, the Operative Coach-makers' Benevolent Society, the Saddlers' and Harness-Makers' Pension Fund Association, the Amicable Benefit Society of Saddlers and Harness-Makers, and the Iron, Hardware and Metal Trades' Pension Society, being £400 to each.

WELL WORTHY OF RECOGNITION.—The *London Carriage Builders' Gazette*, of Jan. 1st, says: "Maria Carding Elliott, the granddaughter of Obadiah Elliott, fifty years of age and poor, is an applicant for a pension at the ensuing election of pensioners by the Governors and Subscribers of the Master Coach-Builders' Benevolent Institution. Please give her a vote."—We heartily wish we had a vote to give. Her distinguished grandfather, as the inventor of elliptic springs, was a benefactor not only of the entire carriage trade, but of the world; and any worthy descendant of his, who needs pecuniary assistance, would seem peculiarly entitled to partake of the beneficence of the fund referred to.

PERSONAL.—Mr. Ludwig Lohner, only son of Mr. Jacob Lohner, senior partner of the firm of Jacob Lohner & Co., coach-builders, of Vienna, Austria, sailed from New-York on Jan. 6th, by the steamer *Alaska*, en route for home. The distinguished house which Mr. Lohner represents was established in 1821, by Mr. Laurenzi, father-in-law of Mr. Jacob Lohner, and has always been noteworthy for its enterprise and energy. In 1866 they were the first among Vienna coach-builders to introduce steam machinery, and the progress of the world has been so promptly reflected in the work of this house, that its methods and fashions have been practically cosmopolitan. It is sufficient to add that Mr. Ludwig Lohner has commended himself to his American acquaintances as a worthy representative of so distinguished a house. He carries with him the good wishes of many friends, who unite with us in hoping that he will again visit America, and at no distant day. *Au revoir!*

TRADE **VALENTINE'S** MARK.

"THE STANDARD FOR QUALITY."

Our Varnishes, Ground Roughstuff and Coach Colors are kept in stock and are for sale by the following Dealers:

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R. M. BINGHAM & Co..... 12 James-st.....ROME.
KENYON, POTTER & Co..... 34 Clinton-st.....SYRACUSE.
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H. A. HAUSSLING..... 27 Springfield Ave.....NEWARK.

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ROBERT SHOEMAKER & Co..... 4th and Race-sts.....PHILADELPHIA.
KENNEDY, WILLING & Co..... 524 Arch-st..... " "
J. C. MICHEL & SON..... 168 Smithfield-st.....PITTSBURGH.
W. W. LAWRENCE & Co..... { 130-142 Ridge-ave.ALLEGHENY CITY.
" { P. O. Box 415.....PITTSBURGH.
KING & HEINTISH..... ".....LANCASTER.

DELAWARE.

KENT IRON AND HARDWARE Co.. 205 Shipley-st.....WILMINGTON.

DISTRICT OF COLUMBIA.

FRANCIS MILLER..... 307 Ninth-st., N. W.....WASHINGTON.
GEO. RYNEAL, JR..... 418 7th-st..... " "

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BURGESS, FOBES & Co 106 Commercial-st.....PORTLAND.
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HEATH & MILLIGAN MFG. Co.... 170 Randolph-st..... " "
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W. S. BRUCE & Co..... 37 and 39 Monroe-st..... " "

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MERRILL & RYAN 225-229 East 3d-st..... " "

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—And for the Pacific Slope.—

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A. RAMSEY & SONS..... 37 Recollet-st.....MONTREAL, QUEBEC.
A. RAMSEY & SONS..... ".....WINNIPEG, MANITOBA.

GEO. E. SMITH & Co..... ".....HALIFAX, NOVA SCOTIA.
DUNLAP BROS. & Co..... ".....AMHERST, " "

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T. WHITTINGHAM & WILKIN, 136 Long Acre, LONDON, W. C., ENGLAND.
J. ROSE & Co..... 79 Goldersrache.....AMSTERDAM, HOLLAND.
GUSTAV SCHMIDT..... IV Bez. Waaggasse No. 14....VIENNA, AUSTRIA.
S. MARCOFF..... Rue Miasnitzkaja No. 141.....MOSCOW, RUSSIA.
L. DE LARRAMENDI..... Janqueras No. 15.....BARCELONA, SPAIN.
HENRY BOX & SON..... 71½ Little Collins.....MELBOURNE, AUSTRALIA.

J. COLTON & Co..... Currie-st.....ADELAIDE, SOUTH AUSTRALIA.
T. W. EADY & SON..... 54 York-st.....SYDNEY, NEW SOUTH WALES.
E. W. MILLS & Co..... ".....WELLINGTON, NEW ZEALAND.
AUGUSTO BLACHET..... ".....SANTIAGO, CHILI, SOUTH AMERICA.
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Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

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Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct.
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York.
Gifford & Co., 79 Dearborn-st., Chicago, Ill. 803
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Kemper Bros., Cincinnati, O. 788
Ten Eick & Kent, 1553 Broadway, New-York 788

AXLES.

- R. Cook & Sons, Winsted, Conn. 797
Carriage and Wagon Axles.
Dalzell & Co., So. Egremont, Mass. 797
Improved Collinge Axle.
Eureka Axle Co., Lynn, Mass. 797
Eureka Axle.
Goodyear & Ives, New-Haven, Ct. 788
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O. 781
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa. 795
Fine and Medium Axles. (See Also Springs.)
Sheldon & Co., Auburn, N. Y. 781
Axles.
A. E. Smith & Warner Axle Co., Wilmington, Del. 797
Smith, Carswell and Vandenbraak Axles.

BODIES.

- F. T. Clymer, Wilmington, Del. 787
Carriage Bodies and Carriage Parts.
The Dann Bros. & Co., New-Haven, Conn. 782
Carriage Bodies and Bent Woodwork.
Jas. Driscoll & Sons Co., Springfield, O. . . . 796
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich. 780
Pat. Bent Sill Phaeton and Carriage Bodies.
Miller Carriage Co., Bellefontaine, O. . . . 790
Specialty: Eureka Bodies.
C. T. Townsend, New-Haven, Conn. 798
Fine Carriage Body Work.

BOLTS.

- Norwich Bolt Works, Norwich, Conn. 800
Genuine Norway Iron Bolts.
T. Skelly, Philadelphia, Pa. 779
Philadelphia Bolt Works.

CARRIAGES FOR THE TRADE.

- D. A. Altick & Sons, Lancaster, Pa. 787
Phaetons and light work.
F. A. Babcock & Co., Amesbury, Mass. . . . 799
Four and Six-Seat Wagons.
S. R. Bailey, Amesbury, Mass. 794
Sleighs in the Wood and Iron.
Renick, Curtis & Co., Greencastle, Ind. . . . 800
The Renick & Curtis Patent Road Cart.
Youngstown Carriage and Wagon Co., Youngstown, O. 795
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York. 788
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa. (Branches: New-York, Boston and Chicago.) Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 785
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- E. N. Baldwin, Birmingham, Conn. 800
Stump Joints.
Cincinnati Screw and Tap Co., Cincinnati, O. 778
Drills, Screws, Taps, etc.
The E. D. Clapp Mfg. Co., Auburn, N. Y. . . . 803
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.
C. Cowles & Co., New-Haven, Ct.
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)
Crandal, Stone & Co., Binghamton, N. Y. 784
Carriage Hardware.
The Dalzell & Ives Wrought Box Co., So. Egremont, Mass. 796
The Dalzell & Ives Wrought Box.
W. M. Farr, Dowagiac, Mich.
Common Sense Sand and Mud Band.
M. T. Gleeson, Columbus, O. 787
Fine Carriage Mountings.
Kerr & Reid, Bridgeport, Ct. 787
Cart Irons.
Metal Stamping Co., New-York. 783
Carriage Trimmers' Hardware and Patented Novelities. (See also Mountings, and Trimmers' Materials.)
Queen City Forging Co., Cincinnati, O. . . . 790
Carriage Hardware.
Rubber Step Mfg. Co., Boston, Mass. 801
The Rubber Covered Carriage Step.
H. D. Smith & Co., Plantsville, Ct.
The "Encircled S" brand of Fine Carriage Forgings.
H. M. Strieby & Co., Newark, N. J. 786
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.
Topliff & Ely, Elyria, Ohio. 796
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.
Vehicle Shaft Supporter Mfg. Co., Cincinnati, O. 798
Iron Shifting Rails.
Walter & Miller, Fremont, Ohio. 791
Seat Rails, Forging to order, etc.
White Mfg. Co., New-Haven, Ct. 785
Pole Crabs. (See Lamps.)

IRON AND STEEL.

- Alan Arthur, 40 Kilby-st., Boston, Mass. . . 782
Agent for Thos. Turton & Sons, Sheffield, Eng. Greaves' Cast Steel for Springs.
C. B. Clarke, St. Louis, Mo. 787
Silvester Patent Tire.
Wm. & Harvey Rowland, Frankford, Philadelphia 792
Iron and Steel. (See also Springs.)
Thomas Turton & Sons, Sheffield, Eng. . . . 782
Cast Spring Steel.

LAMPS.

- C. Cowles & Co., New-Haven, Ct.
(See also Hardware and Mountings.)
White Mfg. Co., Bridgeport, Ct. 785

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 803
A Substitute for Leather.
T. P. Howell & Co., Newark, N. J. 801
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich. 785
Little Giant Hub-Borer.
W. F. & John Barnes, Rockford, Ill. 789
Foot and Steam Power Machinery.
Bradley & Co., Syracuse, N. Y. 795
Power Cushioned Hammer, and Heating Forge for hard coal or coke.
Capital City Mach. Works, Columbus, O. . . . 782
Standish Imp. Foot Power Hammer or Oliver.
The Egan Co., Cincinnati, O. 781
Carriage Wood-working Machinery.
J. A. Fay & Co., Cincinnati, O. 800
Woodworking Machinery.

- George W. Heartley, Toledo, O. 800
Little Giant Axle Box Press.
H. A. Moyer, Syracuse, N. Y. 799
Hub Boring and Boxing Machine.
C. F. Pettingell & Co., Amesbury, Mass. . . 785
Full line of Patented Carriage and Wheel Machinery.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 798

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O. 801
Coach and Car Colors and Varnishes.
F. W. Devoe & Co., New-York. 3d cover page
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa. . . . 801
Ivory Drop Black.
Miles Bros. & Co., New-York.
Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.
Chas. Moser & Co., Cincinnati, O. 797
Palm Bros. & Co., Cincinnati, O. 782
Transfer Ornaments.
Palm & Fechteler, New-York. 790
Transfer Ornaments.
Chas. D. Thum, Philadelphia, Pa. 790
Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.
Valentine & Company, New-York. 777
Fine Coach Varnishes and Colors.
Jno. L. Whiting & Son, Boston, Mass.
Specialties: Whittings' Pearl Flowing Varnish and King Chisel Brushes.

PUBLISHERS.

- "The Hub," New-York City. 702, 803

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind. 800
Platform Gears.
Bridgeport Spring Co., Bridgeport, Ct. . . . 800
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.
Canton Spring Co., Canton, O. 787
Carriage, Wagon and Seat Springs.
Dexter Spring Co., Hulton, Pa. 792
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.
Hartford Spring and Axle Co., Norfolk, Conn. 798
Hartford Full Collinge Axle.
Henry Spring Co., Winsted, Conn.
The Henry Single-leaf Rib Spring.
Kalamazoo Spring and Axle Co., Kalamazoo, Mich. 780
Carriage, Wagon and Seat Springs.
Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa. 795
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)
National Vehicle Co., Racine, Wis. 797
Shaw's Patent Gearing.
T. D. Olin & Co., Cincinnati, O. 784
The Olin Springs.
Rice Spring & Carriage Co., Pittston, Pa. . . 783
Rice Carriage Springs.
C. W. Saladee, Birmingham, Conn. 786
"Duplex Springs."
Wm. & Harvey Rowland, Frankford, Philadelphia, Pa. 792
Fine Springs from Swedish Stock. Also Iron and Steel.
Spring Perch Co., Bridgeport, Ct. 791
Side-Bar Wagon Springs a specialty.
The Edward Storm Spring Co., Poughkeepsie, N. Y. 794
Storm Side-bar Springs, and Bodies and Gears.
Henry Timken, St. Louis, Mo. 791, 793
The Timken Cross-Spring.

- Tomlinson Spring Co., Newark, N. J. 788
Fine Springs and Axles.
- R. Tomlinson Spring and Axle Works,
Bridgeport, Ct. 797
Springs: Specialty, The Hamlin.
- Tuthill Spring Co., Chicago, Ill. 790
Fine Springs, including Timken, Brewster,
Soule, and other patent springs.
- C. R. & J. C. Wilson, Detroit, Mich. 792
The Wilson Side-bar Cross-spring.
- Wisconsin Wagon Co., Madison, Wis.
.....3d cover page
The Hanson & Mack Patented Gears.

TOOLS.

- Chambers, Bros. & Co., Philadelphia, Pa. . 798
Bolt and Rivet Clippers.
- Cincinnati Screw and Tap Co., Cincinnati, O. 798
- J. W. Manneer, Rochester, N. Y. 795
Manneer's Bench Drill.
- Porter & Wooster, Boston, Mass. 798
"Easy" Bolt Clipper.
- A. H. Reid, Philadelphia, Pa. 795
Reid's Lightning Brace.
- Wiley & Russell Mfg. Co., Greenfield, Mass.
Tire and Bolt Cutters. (See also Machinery.)

TRIMMERS' MATERIALS.

- American Tack Co., Fairhaven, Mass. 780
Swedes' Iron Trimmers' Tacks, Japanned and
Silver Lining Nails and Tufting Buttons. (N.
Y. Salesroom, 116 Chambers-st., New-York.)
- Ashtabula Carriage Bow Co., Ashtabula, O. 801
Leather Covered Bow.
- W. I. Atwood & Co., Amesbury, Mass. 794
Carriage Mountings.
- Bridgeport Coach-Lace Co., Bridgeport,
Conn. 788
Coach Laces and Trimmings.
- Cortland Box-Loop Co., Cortland, N. Y. 781
Metal Buckle Loops.
- Crandal, Stone & Co., Binghamton, N. Y. 784
Carriage Trimmings.
- English & Mersick, New-Haven, Conn.
Carriage Broadcloths, Canopies and Canopy Top
Fringes.
- Elliott Dash Stitching Machine Co., Bos-
ton, Mass. 794
- Excelsior Top Co., Cortland, N. Y. 791
Carriage Tops.
- Harris Button-Hole Co., Lim., New-York. 787
Pat. Crimped Leather Knob Eyelets.
- Japanese Hair Mfg. Co., Jersey City, N. J. 785
Japanese Hair and Japanese Moss.
- Chas. P. Ketterer, New-York. 798
Wagon Curtain Fastener.
- C. Z. Kroh & Bro., Toledo, O. 789
Tops, Cushions, Backs, Falls, etc.
- Metal Stamping Co., 134 and 136 Duane-st.,
New-York. 783
Patent Buckle Loops, Back Lights, etc.
- Parker Carriage Goods Co., Cincinnati, O. 780
Carriage Trimmings in great variety.
- F. J. Schmid, New-York. 785
Hand-made Coach Laces, and all kinds of Trim-
ming Materials.
- E. W. Scott, Wauregan, Conn. 800
Whip Sockets.
- A. S. Sherwood, 1546 Broadway, New-York, 799
Carriage Materials.
- Ten Eick & Kent, New-York City. 788
Carriage and Sleigh Materials of every descrip-
tion.
- Topliff & Ely. 796
See Hardware.

VARNISHES, JAPANS, ETC.

- Moses Bigelow & Co., Newark, N. J.
.....3d cover page
Established 1845. Fine Coach and Car Varnish
Manufacturers.
- J. Babcock & Co., Boston, Mass. 2d cover page
- Billings, Taylor & Co., Cleveland, O. 801
Coach and Car Colors and Varnishes.
- F. W. Devoe & Co., New-York. 3d cover page.
Carriage, Coach and Car Colors.
- Felton, Rau & Sibley, Philadelphia, Pa. 801
- Wm. Harland & Son, Merton, Surrey,
England. 2d cover page
On sale in America by first-class dealers in prin-
cipal cities.
- Hildreth, Templeton & Co., New-York.
.....2d cover page.
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- Moller & Schumann, Brooklyn, N. Y.
.....2d cover page
- O'Brien Varnish Works, South Bend, Ind. 782
- Parrott Varnish Co., Bridgeport, Ct.
.....2d cover page
- Pratt & Lambert, New-York City. 779
- C. C. Reed & Co., New-York City. 789

- E. Smith & Co., New-York City ... 3d cov. page
- Stimson & Co., 149 Milk-st., Boston, Mass. 784
Coach and Car Varnishes.
- Valentine & Company, New-York. 777
Fine Coach Varnishes and Colors.


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- C. C. Anderson & Co., Galion, O. 784
Fine Sarven Patent, Band Hub and Plain Wheels.
- Bollenbacher & Sons, Bloomington, Ind. ... 782
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- S. N. Brown & Co., Dayton, O. 799
Superior Wheels, Hubs, Spokes, etc.
- Crane & McMahon, 38 Park Place, N. Y. ... 788
(Salesroom, New-York.) Spokes, Rims, etc.,
and Hickory, Oak and Ash Plank.
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- A. M. Eames & Co., So. Framingham,
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Fine Carriage Wheels.
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- Hoopes, Bro. & Darlington, Limited, West
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Warner Patent and Plain Wheels. Specialty:
Thorough Seasoning and Perfect Work.
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Patent and Plain Wheels, Spokes, Hubs, etc.
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Fine Wheels and Wheel Material.
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Improved Sarven Wheel with Rouse Hub
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- Skinner & Scott, Lynn, Mass. 795
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 **SPECIAL NOTICE.**—As the present season prom-
ises to be rather a trying one for many carriage mechan-
ics, *The Hub* desires to offer a helping hand by opening
this "Want Column," free of charge to all carriage
mechanics seeking employment, and also to all em-
ployers seeking workmen, the only conditions being,
that each advertisement shall be limited to five lines,
and some address must be given to avoid the necessity
of addressing letters in our care.

"THE HUB," 323 Pearl-street.

Employer's Department.

—WANTED.—First-class body-maker, a general
workman, on light work. Address John V. Uping-
ton & Bro., Lexington, Ky.

Workmen's Department.

—WANTED.—Position by A 1 painter; 12 years'
experience as foreman on fine work. Can invest some
capital. Address G. M. P. C., care *The Hub*.

—WANTED.—Situation by a coach painter. First-
class workman, etc. Experienced in running shops.
Address J. W. Dirigo, 216 Sixth-st., Jersey City, N. J.

—A first-class carriage trimmer wants a steady situ-
ation; light or heavy; steady habits; city preferred.
Address A. E. R., Leighton, Carbon Co., Pa.
Box 133.

—WANTED.—A situation as traveling salesman for
varnish or paints, by a practical carriage painter well
acquainted in the West. Address S. B., Lock Box
No. 2, Fowler, Ind.

—WANTED.—A job by a good carriage-smith who
is also able to do a good job of painting and orna-
menting. Had charge of a shop for ten years. Par-
ticulars by addressing M. J. C., Farnham Center,
P. Q.

—WANTED.—A situation as superintendent of a
carriage factory, by a thoroughly competent me-
chanic. All kinds of work. Fifteen years' experi-
ence. Reference, Albert Kehrl, Assistant Editor of
The Hub. Address R., care *Hub* office.

—A first-class striper, letterer and finisher, also
first-class trimmer on light work, would like situation
where he could take charge of both branches. Would
take job now or next spring. Address Trimmer, Box
523, Greenville, Mercer Co., Pa.

—WANTED.—Situation as traveling salesman with
a reliable carriage manufacturer. I have had six
years' experience in Western and Southwestern States.
Will give best of references to reliable parties. Ad-
dress O. L. Huie, Omro, Wis.

—FOR SALE.—Stock and good-will of carriage busi-
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factory, new. Address Douglass Conklin, Adminis-
trator, Huntington, L. I.

A Rare Chance!**For Sale or To Let,**

Small Carriage Factory, Stock and Tools, in Brooklyn,
E. D. Or would take partner with some capital, and
good business capacity, to take entire charge, as present
owner is engaged in other business, and cannot give the
attention necessary. Address

JOSEPH TILTON,

219-223 Frost-street, BROOKLYN, E. D.



T. SKELLY,

Manufacturer of finest NORWAY IRON Carriage,
Tire and Spring Bolts, and all the various styles of
fancy Bolts used by Makers of Fine Carriages.

24th-st., below Callowhill, PHILADELPHIA, PA.

FINISHING VARNISH, Only \$3.80 Gallon.

To any Carriage or Wagon Maker who is
willing to pay the express charges, we will send
one pint of our SPAR VARNISH without
charge, for finishing the finest work.

Use Pratt's Dryer with all Roughstuff and first
coats of Priming.

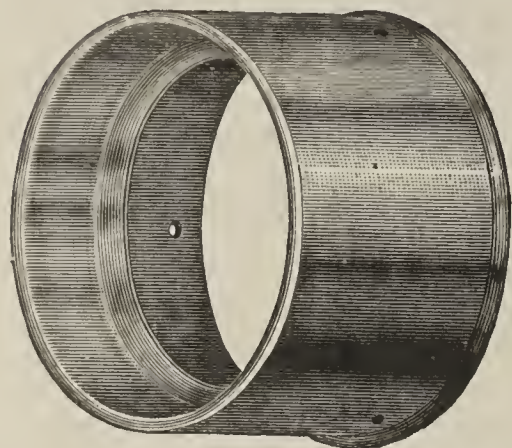
IT IS SUPERIOR TO JAPANS.



The Parker Carriage Goods Co.

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 P. R. MITCHELL, Vice-President.
 The Parker Hub Band. L. M. RINGWALT, Secretary and Treas.
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Manufacturers of the following Specialties:

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Buckle Loops.

Buttons, Tufting.

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Drive Knobs.

Riveting Knobs.

Barbed Knobs.

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Knob Patches and Fasteners.

Name Plates.

Prop Block (Rubber).

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Top Props, Parker's (no screws).

Top Prop Nuts.

Whip Sockets, etc., etc.



Knob Patch and Fastener.

Send for Samples and Prices.

JACKSON PAT. PHAETON BODY AND CARRIAGE CO.,

MANUFACTURERS OF

CARRIAGE BODIES

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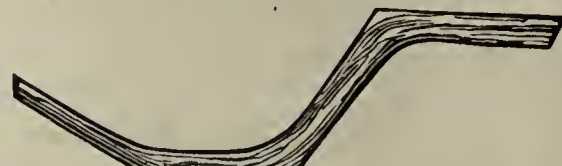
Titus's Pat. Bent Sill Phaeton Body.

Acknowledged to be the best Phaeton Body ever put on the market.

Send for Descriptive Circular and Price-list.



No. 1.



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G. E. STOCKBRIDGE, Vice-President and Treasurer.

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Kalamazoo, Michigan.

THE most careful attention given to Special Orders to be made from Patrons' Drawings and Patterns.

Estimates on this class of work given on application, and satisfaction in material and workmanship guaranteed.



MANUFACTURERS OF ALL STYLES OF

CARRIAGE, WAGON AND SEAT SPRINGS.

Makers of all the Standard Patent Springs.

Send for Catalogue and Terms.

ALL WORK WARRANTED.

TACKS

Lining and Saddle Nails.

Upholsterers', Gimp, Lace, Trimmers', Carpet Tacks (Blued, Tinned and Coppered.)

Silvered, Japanned and Colored Lining and Saddle Nails.

ALSO,

Tufting Buttons, with every eye soldered to its back, which makes the strongest button in the market. (Patented June 28th, 1881.)

AMERICAN TACK CO.,

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Fairhaven, Mass.

BUTTONS

WOOD WORKING MACHINERY,

MANUFACTURED SPECIALLY FOR

Carriage, Wagon and Buggy Builders,

Body-makers,
Gearing, Spoke and Wheel Manufacturers;

EMBRACING

Universal Wood Workers, Wheel Boxers, Tire Bolters,

Band and Scroll Saws, Planers, etc., etc.

Complete Outfits, of our own manufacture, furnished at short notice.

The Egan Company,

(Successors to The Cordesman & Egan Co.)

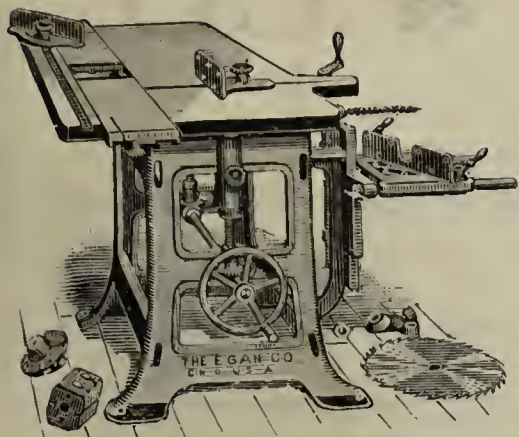
196 to 216 West Front-street,

CINCINNATI, OHIO, U.S.A.

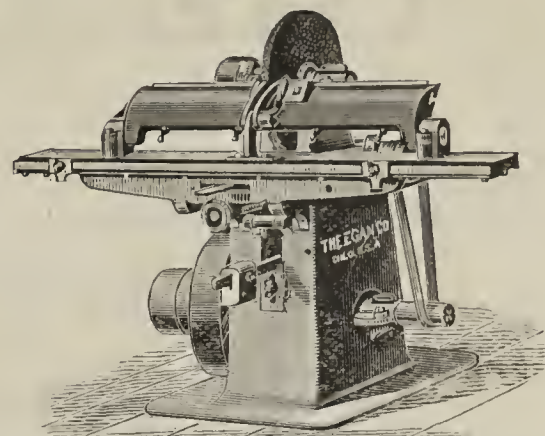
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EDWIN RUTHVEN, Sec'y.

FREDERICK DANNER, Sup't.

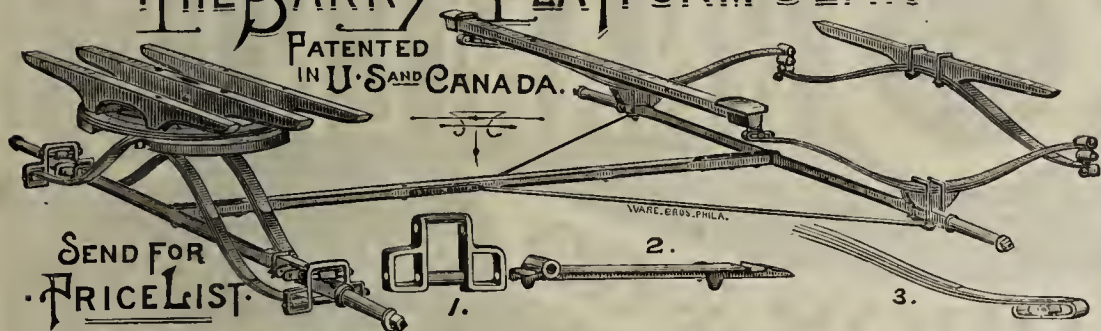


Universal Rip and Cross-Cut Saw.



Automatic Knife-Grinding Machine.

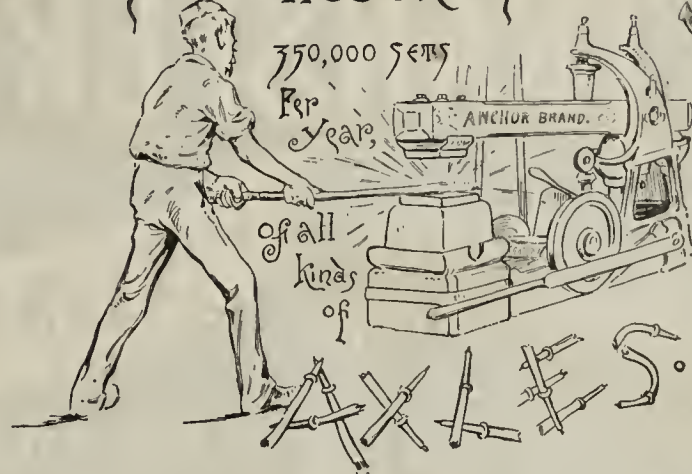
THE BARRY PLATFORM GEAR.

PATENTED
IN U.S. AND CANADA.SEND FOR
PRICE LIST.

M. BARRY, Valparaiso, Ind.

SHELDON & COMPANY.

AUBURN N.Y.



LEATHER BUCKLE LOOPS (including Eyelets).

No. 58, 2 3/4 x 1/2 in. No. 100, 2 1/4 x 1/2 in. No. 64, 1 3/4 x 1/2 in.

A BUCKLE LOOP that is Practical, Perfect, Elegant.

This Loop secures to the back-stay with two heavy Eyelets put through the stay from the back side, and clinched down against the buckle plates on the inside of the Loop. It is fastened in an instant, so that it cannot be pulled off, and avoids use of unsightly tin plates necessary to all Loops which fasten with lugs or spurs.

From the many using our Loop we submit the following:

Jan. 5, 1885.
Cortland Box-Loop Co.,
Cortland, N. Y.

GENTLEMEN: Having used your Loops in our works for several years, we take pleasure in saying we consider them the most desirable Loops in the market. They are clean and handsome in appearance, well made in every particular and easily adjusted. We are glad to recommend them, and wish you success.

Yours very truly,
CORTLAND WAGON CO.

COLUMBUS, O., Dec. 26, 1884.
The Cortland Box-Loop Co.,
Cortland, N. Y.

GENTLEMEN: We take pleasure in stating that we have used your Buckle Loop with your attachment in our works exclusively for several years, and we consider them the best Loop as well as the best attachment that is at present on the market. We shall continue using the same during the coming season.

Yours respectfully,
COLUMBUS BUGGY CO.

CORTLAND, N. Y., Dec. 29, 1884.
Messrs. Cortland Box-Loop Co.

GENTLEMEN: In placing our contract for the season of 1885, allow us to say: We believe you have the best Loop and attachment yet produced. We used them exclusively last year on all our Tops, and were so well pleased with them shall use no others the coming season. Wishing you success, we are,

Yours truly,
EXCELSIOR TOP CO.

No. 10, 2 x 1/2 in.

METAL BUCKLE LOOPS.

No. 20, 2 1/2 x 1/2 in.



Points of Excellence.

1. Can be oiled without taking off wheel.
2. Can oil without unhitching.
3. Oil reservoir holds enough oil to run 2,000 to 3,000 miles.
4. Is perfectly sand-proof.
5. The box is as easily set as an ordinary box.
6. All washers run in clean oil, and hence will not wear.
7. Oil cannot escape at either end of hub, hence will not collect dirt.
8. The oil tube prevents box from turning in hub.
9. The oil-cup on end of box prevents it slipping back.
10. Will not rattle.
11. Will wear twice as long as the half-patent axle which is in general use.
12. Will not lock.
13. Does not require a larger hub than for the wrought-iron box.

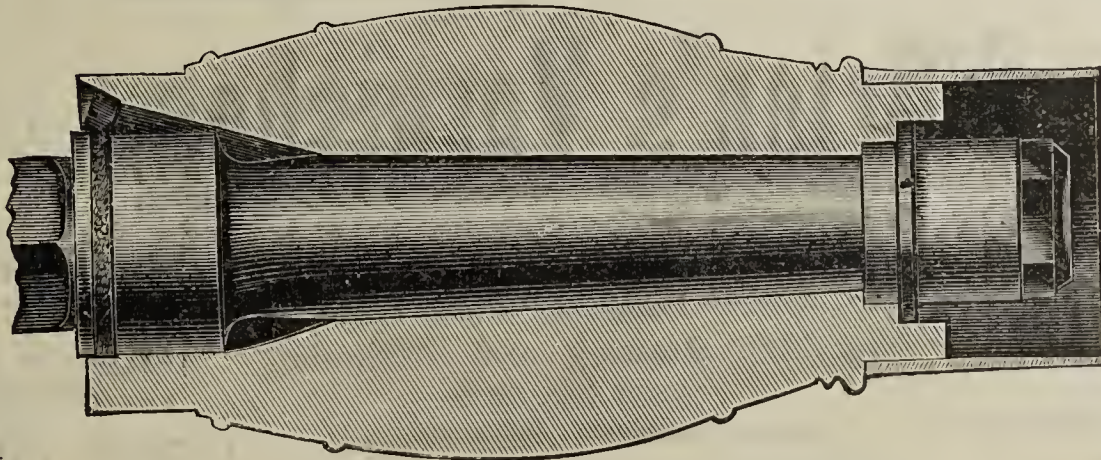
:: Howe's x Patent x Axle ::

Self-Lubricator and Sand-Proof.

MANUFACTURED BY

A. D. Howe & Co., Coshocton, O.

The Simplest, Cheapest and Best Self-Lubricator made.



Will Furnish, Cash with Order, a Trial Set

7/8 Fantail, Fine Steel Axles, for	\$4.50
Inch " Refined Iron "	3.50

SEND FOR CATALOGUE AND DISCOUNTS

Houston Hay, Coshocton, O., licensed to manufacture for and sell to the trade.

No handling dirty wheels.
No soiling of hands or clothing; a lady can oil if necessary.

No dust or grit falling on the spindle, or washers dropping into the dirt.

When necessary to oil, that being about every two or three months, requires less than one-fourth the time it does to oil the ordinary axle.

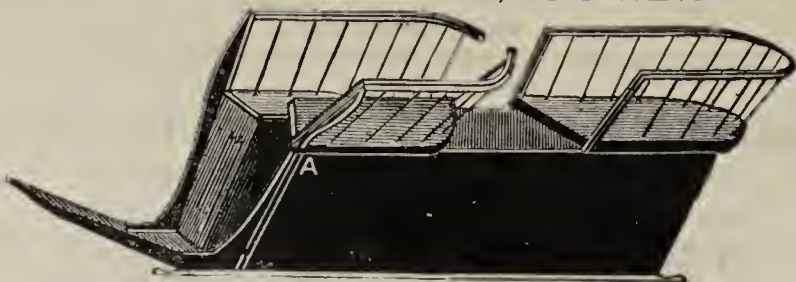
The prevalent idea that the spindle and box of an axle should be cleaned at every oiling is correct concerning the ordinary axle, but does not apply to this axle because all foreign substances, such as dirt, grit, etc., are excluded.

When a journal or spindle is kept thoroughly oiled, the wear is almost imperceptible. Hence it follows that as there is nothing on spindle or in the box but oil, it is not necessary to clean them before oiling. Clean castor oil will not gum.

THE DANN BROS. & CO.,

NEW-HAVEN, CONN.

FURNISH
Carriage Bodies
AND
Bent Woodwork
OF ALL KINDS.



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FURNISHED
ON APPLICATION.

TRANSFER ORNAMENTS

AND CARRIAGE PAINTERS SUPPLIES

PALEM BROS. & CO.

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CINCINNATI, OHIO.

Our New Illustrated Sample Book and Price-list for 1885, sent on application.

WE HAVE NO BRANCH HOUSES.

Wood Engraving.

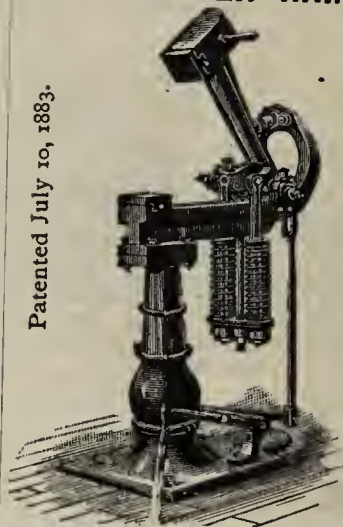
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Engravings of Factories, Portraits, Machinery, Landscapes, etc., executed at short notice and in the best manner. Let us estimate on your work.

"The Hub," 323 Pearl-st., New-York City.

THE STANDISH IMPROVED FOOT POWER HAMMER or OLIVER.

Patented July 10, 1883.



Specially adapted to making carriage and other light forgings for welding in dies having impressions cut to the shape of the work required. Superior to power hammers, as the hammer is under as perfect control as the smith's hand-hammer, and are used for welding Dashes, Shifting Rails, Top Props, shaping and forming all small work equal to drop forgings. Send for circulars.

What Builders say of it.
Will pay for itself in two months.—HAYDOCK Bros., St. Louis.

Manufactured by the Capital City Machine Works, Columbus, O.

AGENTS.—S. A. Smith, General Agent, 154 Lake-st., Chicago, Ill.; Simmons Hardware Co., St. Louis, Mo.; Day Bros., 419 and 421 N. Second-st., Philadelphia, Pa.; H. Prentiss & Co., 42 Dey-st., New-York; S. D. Kimbark, Chicago, Ill.; T. B. Rayle & Co., Detroit, Mich.; A. Burton & Co., Chicago, Ill.

WEARING BODY, ELASTIC GEAR, STANDARD RUBBING, JAPANS.

DURABLE.

O'Brien's Varnishes.

RELIABLE.

WARRANTED TO BE EQUAL TO THE BEST. Address, SOUTH BEND, IND.

STANDARD SPOKE WORKS,
MANUFACTURERS OF
Wagon and Carriage Spokes
and Hard-Wood Lumber.

PROPRIETORS:
Bollenbacher & Sons,
BLOOMINGTON, IND.
Write for Prices and Samples.

Carriage Drafting and Designing
OF EVERY DESCRIPTION.

Colored Drawings Tastefully Executed.
Monograms painted to order on transfer
paper, and sent by mail to any address.
Correspondence solicited.

JOHN C. KONRAD,
(Late with Brewster & Co. (of Broome-street.)
28 East 14th-st., New-York.

THOMAS TURTON & SONS,
Sheffield England,
MANUFACTURERS OF

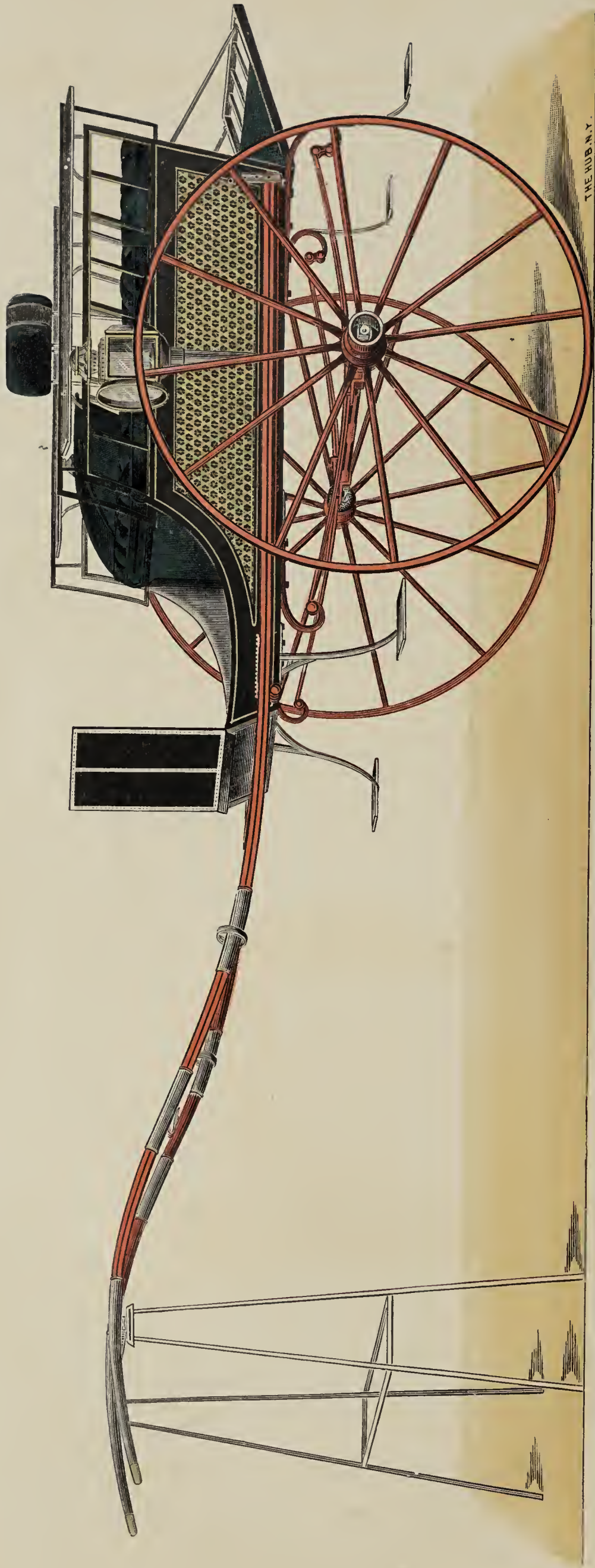
Cast Spring Steel,

Warranted for Uniformity, Finish and Temper,
and specially made for
Brewster, Timken, Pennoyer, Bailey, Stivers and Gosling
Patent Springs.

N. B.—To save waste, we are ready to supply this steel
in cut lengths for the manufacture of the above well-
known Springs.

AMERICAN OFFICE: 49 KILBY-ST., BOSTON, MASS.

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COLORED PLATE NO. LVII. WHITECHAPEL DOS-A-DOS CART SCALE, THREE-QUARTER INCH.

The Hub's

Fashion Plates: Spring Season, 1885.

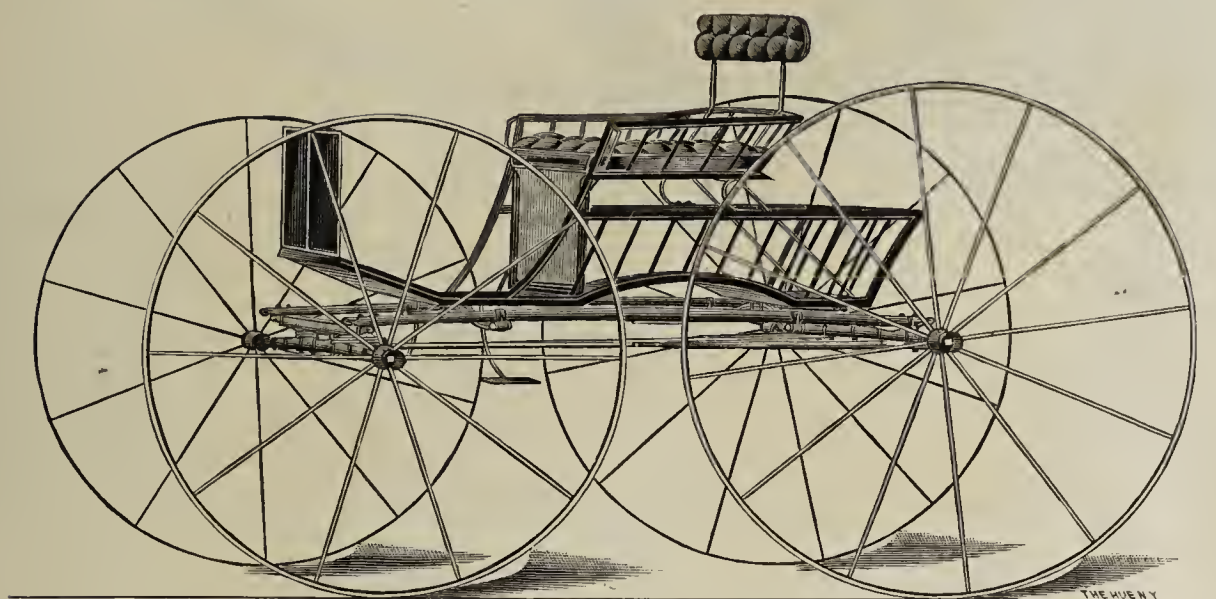


Plate No. 93. SPIDER WAGON ON SIDE-BARS.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 813.

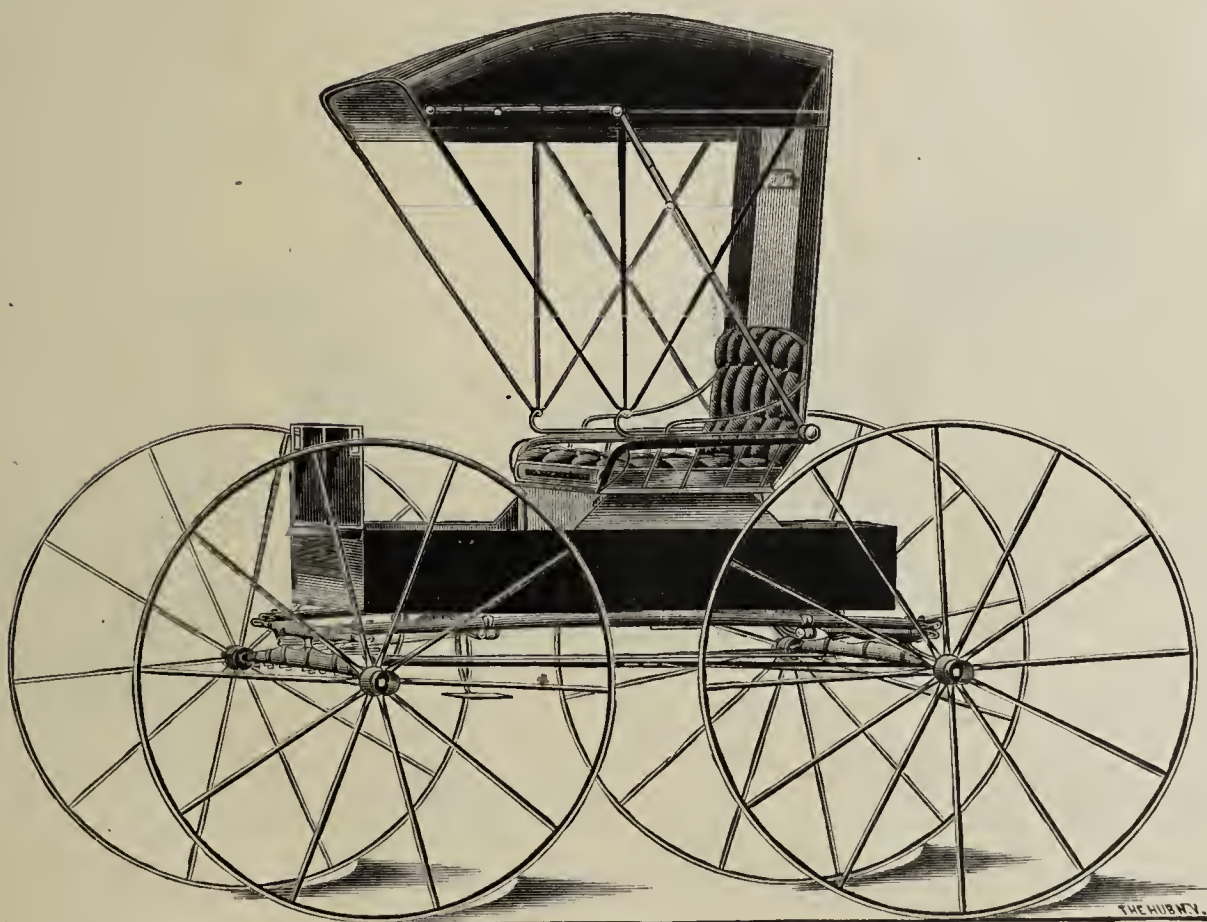


Plate No. 94. BROOME-STREET SQUARE-BOX BUGGY ON SIDE-BARS.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 814.

1890-91
The University of the South

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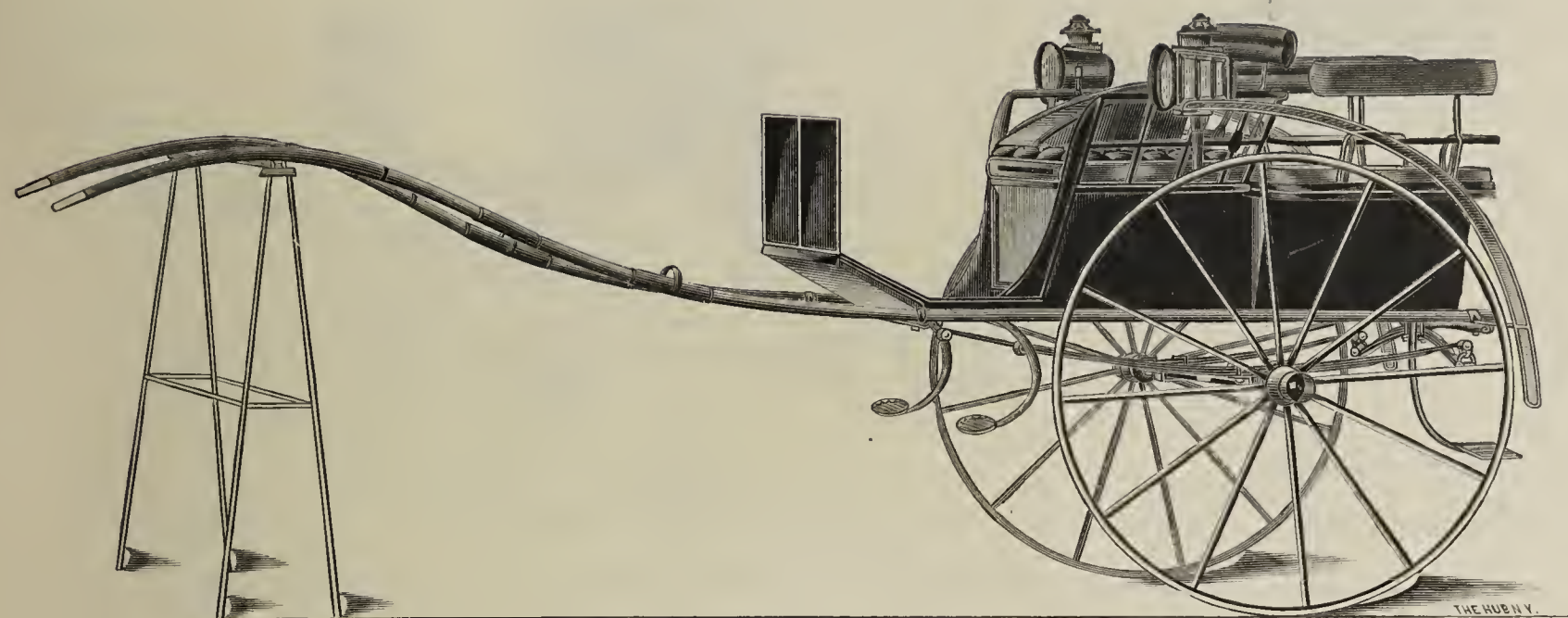


Plate No. 95. FOUR-PASSENGER WAGONET CART.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 814.

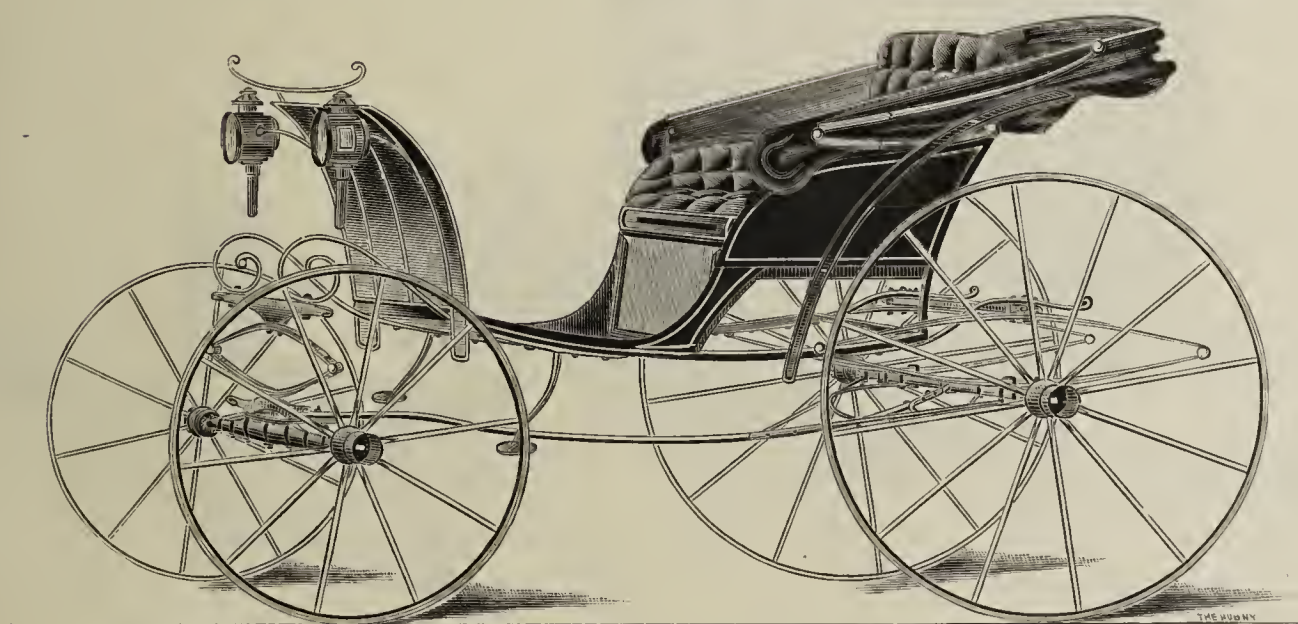


Plate No. 96. PARRY'S CZARINA PHAETON.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 814.

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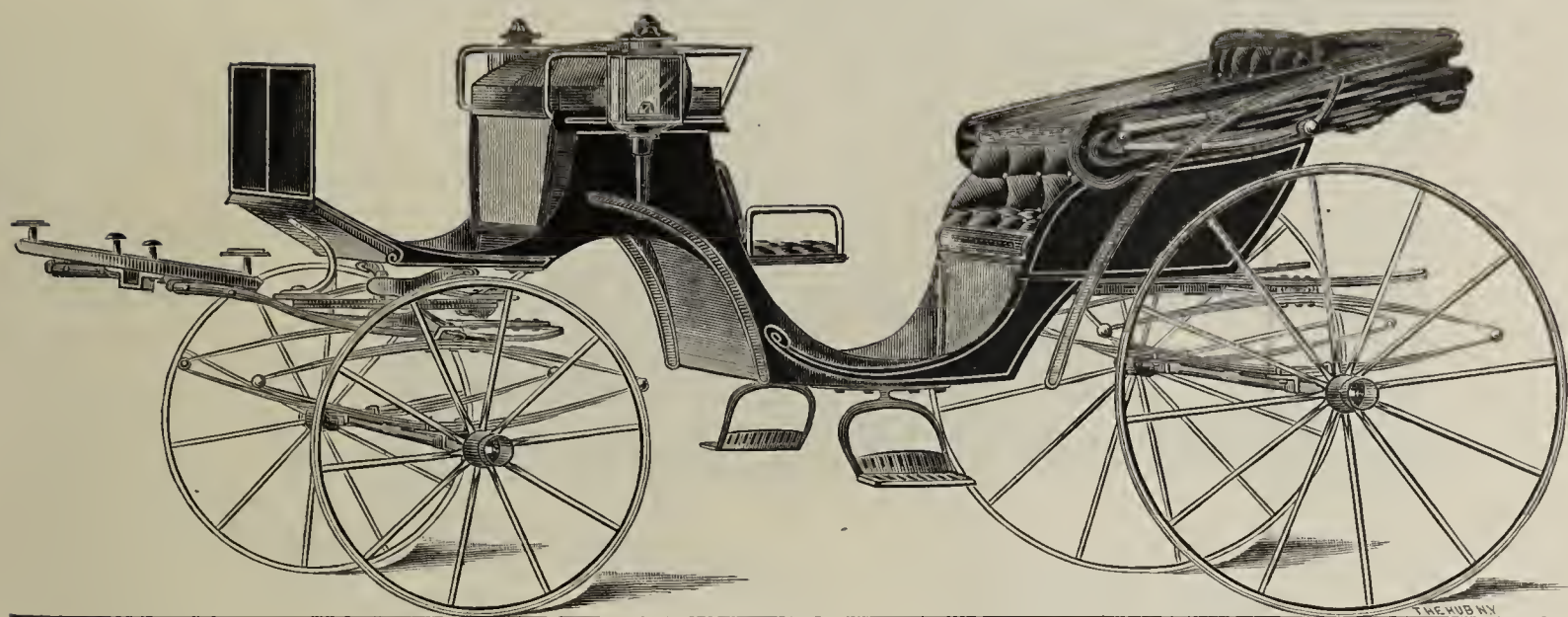


Plate No. 97. NEW-HAVEN CABRIOLET: STYLE OF 1885.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 814.



Plate No. 98. COUPE-ROCKAWAY, WITH BARKER LINES.—Scale, one-half inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 815.

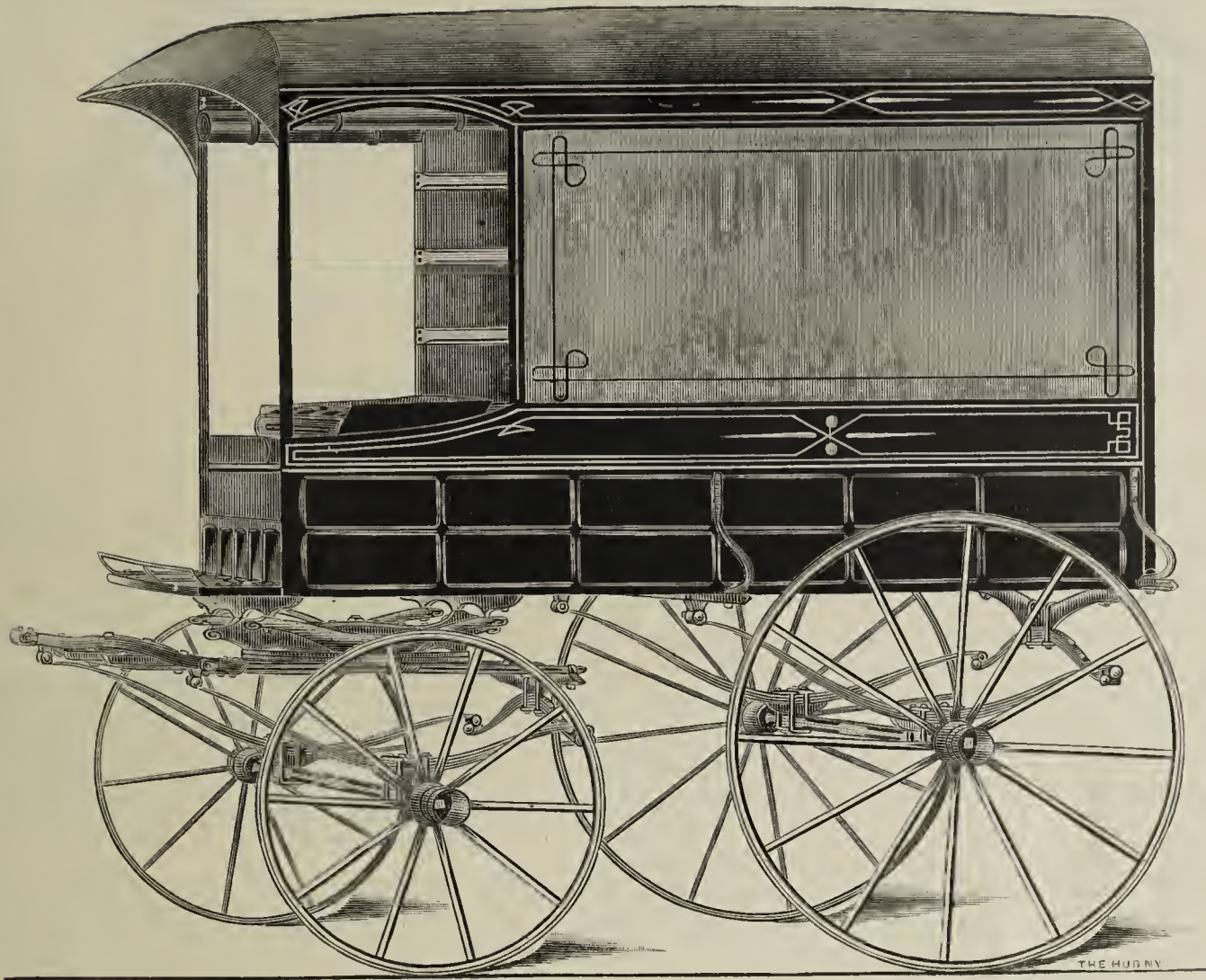


Plate No. 99. PLATFORM-SPRING EXPRESS WAGON, OF MEDIUM SIZE.—Scale, one-half Inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 815.

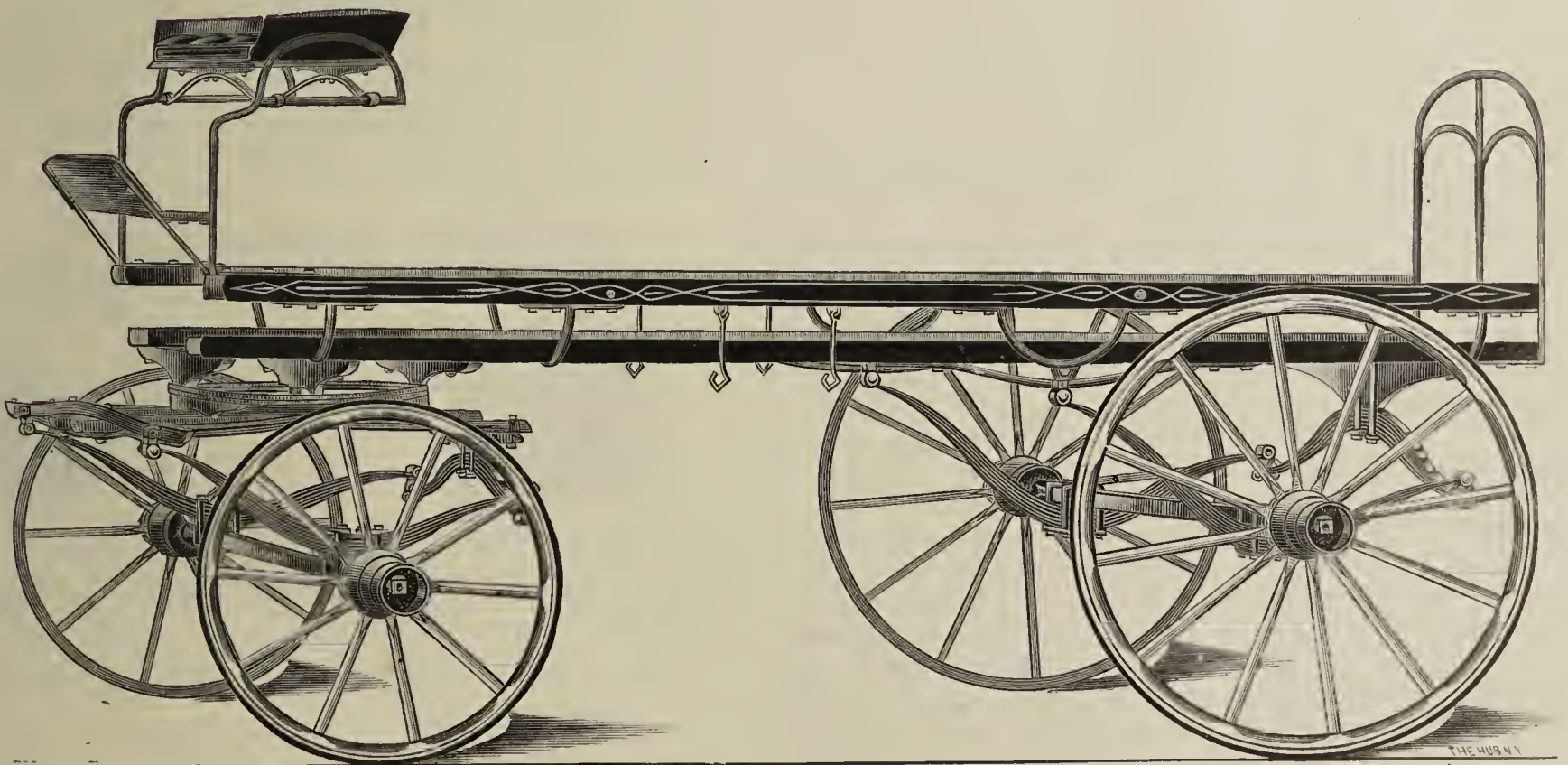


Plate No. 100. CHICAGO BEER TRUCK.—Scale, one-half Inch.

(Drawn and Engraved expressly for "The Hub.")

See description under "Draft-room" in this number, page 816.

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The Hub

"Boston State-House is the Hub of the Solar System. You couldn't pry that out of a Boston man if you had the tire of all creation straightened out for a crowbar!"—OLIVER WENDELL HOLMES.

VOL. XXVI.

NEW-YORK, MARCH 1, 1885.

No. 12.

THE HUB.

Founded in 1869, by Valentine & Company.

Devoted by the present publishers to the interests of the Carriage, Wagon, Sleigh and Accessory Trades.

The following periodicals have been absorbed by *The Hub*: E. M. Stratton's *New-York Coach-makers' Magazine*; F. B. Gardner's *Painters' Portfolio*; and Adolphus Muller's *Lithographic Carriage Fashion Book*; also *Whip and Spur*, and the American edition of *Le Peintre en Voitures (The Carriage Painter)*.

PERSONNEL.—Geo. W. W. Houghton, Editor. J. Howard Barnard, Business Manager. Assistant Editor and Draftsman, Albert Kehrl. Editor of "Paintshop Dept.," Wm. B. Long. Consulting Editors: John D. Gribbon, in "Body-shop;" and H. M. DuBois, in "Wheel-shop." C. H. E. Redding, Manager Advertising Department.

SUBSCRIPTION PRICE, strictly in advance, \$3.00; if charged six months, \$3.25; if charged twelve months, \$3.50. Club of two, \$5.50; club of four, \$10.00; club of 10, \$20.00. Single copies, 30 cents. Remittances at the risk of the subscriber, unless made by registered letter; or by draft, check, or post-office order, payable to the order of "The Hub." Postage stamps accepted as cash. Address, "The Hub" 323 Pearl-st., New-York. Western Branch office, 68 Lake-st., Chicago.

For advertising rates, apply to the Publishers. Advertisements must be acceptable in every respect. Copy for Editorial Department must be received by the 1st of the month, and for advertising, by the 10th, in order to insure insertion in the following number. Communications must be accompanied by the full name and address of writers. Inquiries requiring answer by mail must inclose return postage.

LOCAL REPRESENTATIVES.

WESTERN STATES.—A. A. Morrill, 68 Lake-street, Chicago, Ill.

NEW-ENGLAND.—Geo. T. Morrill, Amesbury, Mass.

CANADA.—Thos. Henry, 43 Magill-street, Toronto, Ont.; and J. L. Bronsdon, Toronto. (Subscription price, same as in United States, postage prepaid.)

ENGLAND.—Alfred E. Chirm, 42 Temple-street, Birmingham, Eng. Subscription price same as in America, namely, 12 shillings or \$3.00. Orders and remittances may be made either through the above agency, or (as previously) direct to our New-York office by English postage stamps, or post-office money-order, to the order of Geo. W. W. Houghton.

FRANCE.—Hadwin Houghton, 91 Champs-Elysées, Paris, France; and Brice Thomas, publisher of *Le Guide du Carrossier*, 135 Boulevard Haussmann, Paris. Subscription price, 20 francs, postpaid.

GERMANY.—H. & T. Hampe & Co., 64 Alteswall, Hamburg. Subscription price, 16 marks, postpaid.

AUSTRALIA.—Henry Box & Son, 71½ Little Collins-street, Melbourne, Victoria. Frearson & Brother, Adelaide, South Australia.



DESCRIPTIONS OF FASHION PLATES.

WHITECHAPEL DOS-A-DOS CART.

(See Colored Plate No. LVII.)

TWO-WHEELERS still retain an enviable degree of popularity, and seem likely to hold a prominent place for a long time to come. Great varieties in style have been developed since the general introduction of the Cart into this country as a pleasure vehicle; and one of the greatest objections, the jerky motion of the body, has practically been overcome by various contrivances, consisting of different applications of springs, the number of patents in this special line nearly equaling, at present, those on side-bar suspension. It is also worthy of note that platform springs applied to such carts insure easy riding, even without the attachment of springs invented to relieve the so-called horse motion; while half-springs, such as are shown in this drawing, afford considerable relief. It has been proved that a cart body hung on two half-springs, if properly balanced, will exhibit very little horse motion, if any. The

worst specimens are those hung on two elliptic springs, which should be avoided, if possible.

The Cart now presented is of such size as to permit the introduction of two seats, with a good depth, and sufficient room for sliding them either backward or forward as emergency requires. The front resembles that of a Whitechapel Buggy, and harmonizes well with the rest. The framework of the body is constructed in the usual manner, as described in connection with previous designs of Carts. The sticks for the upper section of the body may be either square or V-shaped. Imitation cane-work may be introduced, with good effect, between the moldings on the lower section of the body.

Dimensions.—Width of body on top, 41 in.; and ditto bottom, 36 in. Height of wheels, 4 ft., without the tire. Depth of rims, $1\frac{7}{8}$ in. Size of spokes, $1\frac{7}{8}$ in. Number of spokes, 14, with no stagger. Hubs, $5\frac{1}{2}$ in. diameter. Front bands, $3\frac{3}{4}$ in., and back, $4\frac{3}{8}$ in., inside diameter. Length of front bands, $1\frac{3}{4}$ in. Length of hubs, 7 in. Tire, $1\frac{1}{8} \times \frac{3}{8}$ in., round-edge steel.

The springs are 49 in. long, from out to out, with 4 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first two No. 2, and the others No. 3 steel. Axle, $1\frac{1}{4}$ in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the body, black; but imitation cane-work may be introduced between the moldings on the lower part of the body. Gearing, carmine, with a broad stripe and two fine lines of black. Trimming, green goatskin. Plain trimming is generally preferred on such Carts, but in many instances the cushion tops are laid off either in biscuits or diamonds. The floor is covered with either linoleum, or green carpet with black figures. Mountings, silver.

SPIDER WAGON ON SIDE-BARS.

(See Fashion Plate No. 93.)

THIS Spider Wagon varies in several respects from the one published in Vol. XXV (November *Hub*, 1883), page 479; and the changes now introduced tend to improve the design considerably. Both these wagons should be built very light, but strong.

For the bottomside, which is swept as is seen on the drawing, light plates will be advisable on the inside, in order to strengthen the somewhat cross-grained portion. The bottom sills are $1\frac{1}{8}$ in. thick. The bottom in front is $\frac{3}{8}$ in. thick, and fastened to the sill by screws, and also further strengthened in the center by two straps made either of wood or iron. The bottom for the swept or center part, and also the rear portion of the body, are $\frac{5}{16}$ in. thick, and are fastened to the sill by screws. The front pillar is mortised into the bottom sill, and strengthened on the inside by a half-round plate. The rear portion of the seat rests on two light stays, which are screwed to the top rail of the body, and to the bottom of the seat-frame. For additional strength of the rear portion of the seat, two light iron braces extend from the cross-bar of the body to the rear cross-piece of the seat-frame. The sticks for the body and seat are turned either plain, round, or with two light beads in the center. They should be made from the best hickory, and be very light.

The body is hung on side-bars. No springs are used on the ends, but the side-bars rest in front on the head-block, and at the rear on the axle-bed.

Dimensions.—Width of body on top, 29 in.; ditto bottom, 25 in.; ditto seat on top, 35 in.; and ditto bottom, 30 in. Height of wheels: front, 3 ft. 9 in.; and rear, 4 ft. Depth of rims, $1\frac{1}{8}$ in. Size of spokes, $1\frac{1}{8}$ in. Number of spokes, 14. Stagger of spokes, $\frac{1}{4}$ in. Hubs, $3\frac{1}{2}$ in. diameter. Front bands, 2 in., and back, $2\frac{1}{2}$ in., inside diameter. Length of front bands, $1\frac{1}{2}$ in. Length of hubs, 6 in. Tire, $\frac{7}{8} \times \frac{1}{8}$ in., round-edge steel.

The front cross-spring is 29 in. long, from out to out, with $2\frac{3}{4}$ in. set. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, namely: the

first two No. 3, and the last No. 4 steel. The rear cross-spring is of the same length as the front one, with 3 in. set over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first two No. 3, and the last two No. 4 steel. Size of axles, $\frac{7}{8}$ in. Width of track, 4 ft., from out to out.

Finish.—Painting of the body, black; and gearing, dark blue, striped with two medium lines of light blue. Trimming, blue cloth. The lazy-back is finished with two rows of squares, and a patent-leather welt around the edges. Squares are also used for the cushion top. The front and sides of the cushion are finished with a raiser of blue cloth in the center, and a patent-leather welt around the top and bottom edges. The fall is edged with a patent-leather welt, and may either be left plain or finished with a raiser. Carpet, blue, with light blue figures. Mountings, silver.

BROOME-STREET SQUARE-BOX BUGGY ON SIDE-BARS.

(See Fashion Plate No. 94.)

WHILE the construction of a square-box buggy is not attended by any special difficulties when it is intended for general service, where strength is the essential condition, the utmost exactness in both the selection of materials and their make-up is necessary when such a vehicle is built for speeding purposes, for then the wagon has to carry the same weight, while it is made as light as the safety of the occupants will permit. It is true that a buggy built for speeding purposes will not be used on rough pavements, like its companion constructed for hard work, but even with the advantage of better roads, its body and gear require the most skillful and careful attention, especially with respect to the woodwork and ironwork. Great accuracy is also exercised in the trimming of such finer wagons, not only in the material, but also in the workmanship; and in all first-class shops special pains are taken with the stitching of the different parts, such as the dash, front of cushions, etc. In outline and general style, the patterns now popular differ very little, the variations consisting mainly in the length and width of the body, and the finish of the seat-riser. The seats are made either with solid sides and back, or with sticks, as on this drawing. No end-springs are used on this gear, but bolsters are substituted.

Dimensions.—Width of body on top, 24 in.; ditto bottom, $23\frac{1}{4}$ in.; ditto seat on top, 33 in.; and ditto bottom, 27 in. Height of wheels: front, 3 ft. 9 in., and rear, 3 ft. 11 in., without the tire. Depth of rims, $1\frac{1}{16}$ in. Size of spokes, 1 in. Number of spokes, 14. Stagger of spokes, $\frac{1}{4}$ in. Hubs, $3\frac{1}{4}$ in. diameter. Front bands, $1\frac{7}{8}$ in.; and back, $2\frac{1}{4}$ in., inside diameter. Length of front bands, $1\frac{1}{2}$ in. Length of hubs, 6 in. Tire, $\frac{3}{4} \times \frac{3}{8}$ in., round-edge steel.

The front spring is $27\frac{1}{4}$ in. long, from out to out, with $2\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, namely: the first two No. 3, and the last No. 4 steel. The rear spring is of the same length as the front one, with $2\frac{3}{4}$ in. set over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, all No. 3 steel. Axles, $\frac{3}{4}$ in., steel. Track, 4 ft., from out to out.

Finish.—Painting of the body, black; and gearing, dark blue, with two fine lines of light blue. Trimming, blue cloth. The upholstery of the back and cushions is made up in squares. The front face of the cushion is edged with a welt of cloth, and centered by a raiser of cloth. The fall is also edged by a welt of cloth, and further finished by raisers about 1 in. from the outer edge, and another in the center. Carpet, plain blue. Mountings, silver.

FOUR-PASSENGER WAGONET CART.

(See Fashion Plate No. 95.)

WE are indebted to Mr. H. M. Stoddard, foreman body-maker with Mr. David K. Wall, carriage-builder, of Denver, Col., for sketches and measurements of the novel and attractive Cart represented in this Fashion Plate. The design was made by Mr. Stoddard, and the Cart manufactured after it has been made by Mr. Wall; and we are informed by our correspondent that it has attracted considerable attention on its first appearance on the drives of the above-named city.

This Cart accommodates four passengers, those on the front seat facing forward as usual, while the two at the rear face one another after the manner of the Wagonet. The body is divided lengthwise into two sections, as shown in our drawing. The front part is not inclined, but the portion under the side seats is inclined $1\frac{1}{4}$ in. on each side, forming an offset. Two uprights are necessary at this point. The rear upright is made of sufficient depth to allow of gluing the front upright to it. The rear part of the combined upright should project over the sill the thickness of the panel. The projecting part is then worked down, forming a miter at the front face. The front seat projects over the body about 3 in. The stanhope-pillar is made of ash, and is framed into the bottomsides. The front seat is made similar to that of a T-cart, and has round

corners. Each of the side seats projects over the body 6 in. The rear ends of the shafts are clipped on top of the cross-spring bar. There is also a device attached to the body, consisting of steel rods, which permits the body to move backward and forward a distance of about 7 in., thus permitting a perfect balance when loaded; and another contrivance is introduced at the rear end of the body for raising or lowering the body to regulate the height of the shafts in front.

Dimensions.—Width of body under front seat, top and bottom, 30 in.; ditto rear of body on top, $32\frac{1}{2}$ in.; ditto bottom, 30 in.; ditto front seat on top, $41\frac{1}{2}$ in.; and ditto bottom, 36 in. The rear or side seats project over the sides of the body 6 in. on each side. The length of the side seats is 21 in., and depth $15\frac{1}{4}$ in. Height of wheels, 3 ft. 10 in., without the tire. Depth of rims, $1\frac{1}{2}$ in. Size of spokes, $1\frac{1}{2}$ in. Number of spokes, 12, with no stagger. Hubs, $5\frac{1}{2}$ in. diameter. Front bands, $3\frac{3}{4}$ in.; and back, $4\frac{3}{8}$ in., inside diameter. Length of front bands, 2 in. Length of hubs, 8 in. Tire, $1\frac{3}{8} \times \frac{3}{8}$ in., round-edge steel.

The side-springs are 44 in. long, from out to out, with $4\frac{1}{2}$ in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 1, the next No. 2, and the last three No. 3 steel. The cross-spring is 40 in. long, from out to out, with 5 in. set over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first No. 1, the next two No. 2, and the last two No. 3 steel. Axle, $1\frac{3}{8}$ in., Collinge patent. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, dark green; and stanhope-pillar and front seat, black. The moldings are striped with a fine line of carmine. Gearing, green, with a broad stripe and two fine lines of carmine. Trimming, green cloth. The cushion tops are plain, with lace facings; and the lazy-backs are also trimmed plain. The rails around the side seats are covered with bow leather. Carpet, green, with red figures. Mountings, silver.

PARRY'S CZARINA PHAETON.

(See Fashion Plate No. 96.)

THE drawings and dimensions of this attractive vehicle were kindly furnished us by the designer and builder, Mr. A. N. Parry, of Amesbury, Mass., for which he will please accept our thanks. It represents a stylish, and not expensive Phaeton, which seems well adapted for general introduction.

The body, of the latest style, is suspended on three springs, and hung as low as possible, or about 24 in. from the ground. Bent corner-pillars and bottomsides may be used to advantage. The bottom sill at the corner-pillar should be left somewhat heavy, in order to gain sufficient substance for framing the cross-bar and corner-pillar. The sides are made of thick whitewood, and the moldings are worked on. A thin panel is used for the back, and put into a groove. The section from the bottom edge of the side to the bottom sill is made of whitewood, forming a miter with the bottom sill at the bottom edge, and the moldings are also worked on. One feature of this vehicle which will recommend it to a large class of customers is that the top can be removed, and an English canopy top substituted. The gear has a full circle fifth-wheel, and the kingbolt is placed at the rear of the front axle.

Dimensions.—Width of body on top of seat in front, 39 in.; ditto top on rear of seat at the upper corner, 36 in.; ditto bottom, 27 in.; and ditto dash, 29 in. Turn-under, 5 in. Height of front wheels, 2 ft. 9 in., and rear, 3 ft. 5 in., without the tire. Depth of rims, $1\frac{3}{16}$ in. Size of spokes, $1\frac{5}{16}$ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{5}{16}$ in. Hubs, $3\frac{7}{8}$ in. diameter. Front bands, $2\frac{3}{8}$ in.; and back, $2\frac{7}{8}$ in., inside diameter. Length of front bands, $1\frac{5}{8}$ in. Length of hubs, $6\frac{1}{2}$ in. Tire, $\frac{7}{8} \times \frac{3}{16}$ in., round-edge steel.

The front spring is elliptic, 36 in. long, from out to out, with $7\frac{1}{2}$ in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, three, all No. 3 steel. The rear springs are elliptic, 36 in. long, from out to out, with 7 in. opening over all. Width of steel, $1\frac{1}{4}$ in. Number of plates, four, namely: the first two No. 3, and the next two No. 4 steel. Axles, 1 in. Track, 4 ft. 6 in., from out to out.

Finish.—Painting of the side and rear panels, dark green; and moldings and rest of the body, black, with no striping on the molding. Gearing, dark green, with two heavy round lines of carmine. Trimming, green cloth. The upholstery for the sides and back is quilted, and the figures are of the square pattern. The top sections of the back and sides are finished with a row of seaming and pasting lace. The seat-fall is plain, but edged with a cloth welt. Two cushions are used for the seat. For the edges of the front facings, cloth welts will be suitable. Carpet, green, with black figures. Mountings, silver.

NEW-HAVEN CABRIOLET: STYLE OF 1885.

(See Fashion Plate No. 97.)

WHEN the Cabriolet was first introduced in this country it was immediately received with favor by owners of fashionable carriages, and its

popularity has increased every year, until specimens are now found in every carriage wareroom of note, and of numerous styles. Its suspension is particularly varied. The majority of the Cabriolets now built are hung on either four elliptics, or elliptic and platform springs, but we also notice not a few on C and under-springs.

Our present Fashion Plate shows no special novelties in outlines, but represents a standard pattern of the present season, which we can recommend. On the rear quarter the corner-pillar leans under considerably, and is curved at the rear face a trifle more than usually. The bottom-side, as shown on the drawing, is swept upward at the rear end about $\frac{1}{2}$ in., which will harmonize well with the top sweep of the sides. The bottomside, below the bottom molding of the seat-sides, is of good width, and terminates in a scroll at the front end. The front end is swept upward about 6 in. from the bottom edge of the body, and has a short curve near the front end. (See drawing.) A child's-seat is attached to this vehicle as usual, and slides into the boot.

Dimensions.—Width of body on top, in front of the rear seat, 4 ft.; ditto top at rear, 41½ in.; ditto bottom at rear, 38½ in.; and ditto dash, 31 in. Turn-under, 6½ in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with 1¾ in. No. 16 screws. Height of wheels: front, 2 ft. 8 in.; and rear, 3 ft. 8 in., without the tire. Depth of rims, 1½ in. Size of spokes, 1½ in. Number of spokes, 10 and 12, with no stagger. Hubs, 5¾ in. front, and 6 in. rear. Front bands for front hubs, 4 in.; and back, 4½ in., inside diameter. Front bands for rear hubs, 4½ in.; and back, 4¾ in., inside diameter. Length of front bands, 1¾ in. Length of hubs, 7½ in. Tire, $1\frac{1}{4} \times \frac{5}{16}$ in., round-edge steel.

The front springs are elliptic, 38 in. long, from out to out, with 9½ in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first three No. 2, and the last No. 3 steel. Holes apart on the top half, 3½ in. Size of holes, $\frac{5}{16}$ in. The rear springs are elliptic, 40 in. long, from out to out, with 8½ in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first three No. 2, and the last No. 3 steel. Holes apart on the top half, 3½ in. Size of holes, $\frac{5}{16}$ in. Axles, 1¼ in., Collinge patent. Track, front, 4 ft.; and rear, 4 ft. 8 in., from out to out.

Finish.—Painting of the body, side and back panels of the rear seat, dark green; and the space between the moldings of the bottomside below the seat, dark green. Moldings and boot panels, black. Gearing, dark green, striped with three light stripes of carmine at a distance. Trimming, green goatskin for the back and cushion top; and green cloth for the side quarters and the head-lining. The elbows are faced at the inside with broad-lace, and are carried up following the line of the body until they reach the top of the back. The back has two rows of buttons on the top forming half diamonds, and two rows of buttons at the bottom. The front face of the cushion is finished with broad-lace. The heel, or lining-board, is quilted and edged with broad-lace. No fall is used. The driver's-seat is trimmed with cloth, and done up in a plain style. Carpet, plain green. Mountings, silver.

COUPÉ-ROCKAWAY, WITH BARKER LINES.

(See Fashion Plate No. 98.)

WE are indebted for the drawing and dimensions of this Rockaway to Mr. John Brill, foreman in the body-shop of Messrs. Henry Hale & Co., in New-Haven, Conn. The so-called "Barker line" is applied to the rear quarters, and constitutes the most noteworthy feature of the design. This line is seemingly gaining somewhat in favor once more, according to the testimony of several of our correspondents, and specimens may be expected to be seen among the spring stock of several prominent builders. In the shop which Mr. Brill superintends, the "Barker line" is now employed very generally on all kinds of bodies, and results seem to warrant its more general adoption. The sweep here shown at the back quarter is not so short as that adopted by several builders for the purpose of gaining seat-room; but ample seat-room is obtained in this design, as will be found by taking measurements.

A slight change will be noticed at the wheel-house, which forms a blunt curve at the front and rear corners on top. The panels of the wheel-house do not follow the shape of the wheel-house, but form square corners on top. The rear panel of the wheel-house is swept backward considerably, to allow the front wheel to pass. The bottom end of the rear standing-pillar forms a concavo-convex sweep, as will be seen on our drawing. The side lights at the rear quarters are of good size, and add materially to the good appearance of the vehicle. An imitation stanhope-pillar is applied to the front seat, which is made of whitewood. The front axle is brought forward as much as possible, and the beds are swept forward about 3 in. A half fifth-wheel only is used.

Dimensions.—Width of body at the hinge-pillar, 49 in.; ditto at coupé-pillar, 46½ in.; ditto rear, 41 in.; and ditto dash, 31 in. Turn-under, 3 in. Rocker-plates, $2\frac{1}{4} \times \frac{1}{2}$ in., fastened with 1¾ in. Nos. 14, 16 and 18 screws. Height of wheels: front, 2 ft. 10 in.; and rear, 3 ft. 10 in.

Depth of rims, 1½ in. Size of spokes, 1½ in. Number of spokes, 10 and 12. Stagger of spokes, $\frac{5}{16}$ in. Hubs, 4½ in. Front bands, 3 in., and back, 3½ in., inside diameter. Length of front bands, 1¾ in. Length of hubs, 7 in. Tire, $1 \times \frac{5}{16}$ in., round-edge steel.

The front springs are elliptic, 37 in. long, from out to out, with 9 in. opening over all. Width of steel, 1½ in. Number of plates, five, namely: the first two No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 3½ in. Size of holes, $\frac{5}{16}$ in. The rear springs are platform. The side-springs are 41 in. long, from out to out, with 10 in. opening over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Holes apart on the top half, 3¼ in. Size of holes, $\frac{5}{16}$ in. The cross-spring is 38½ in. long, from center to center, with 5 in. set over all. Width of steel, 1½ in. Number of plates, four, namely: the first No. 2, the next two No. 3, and the last No. 4 steel. Axles, 1½ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower quarters, lower back, door panels, and front seat panels, dark green; and upper quarters, upper back panel and moldings, black. There is no striping on the moldings. Gearing, dark green, with two light stripes of carmine at a distance. Trimming, green cloth throughout. The upholstery on the rear back has a row of medium-sized squares on top, followed by a row of piping, and finished at the bottom by two more rows of squares. The cushion top on the rear seat is laid off in medium-sized squares. The front face is finished with a plain style of broad-lace. The lower quarters are squabbed, and laid off in squares. This is also done at the upper back, between the rear light and the rear corner-pillars. The doors are edged with broad-lace, and tufted between the broad-lace. Broad-lace is also used around the top. Instead of a fall, the carpet extends up to the seat-rail. The inside of the division front is finished with pasting-lace, and the lower part is either trimmed plain or finished with tufts the same as on the doors. The forward seat-back and the cushions and fall are trimmed with green morocco. The medium-size square pattern is used for the squabbing. The fall is finished with a 1 in. raiser around the edges. Carpet, green, with small black figures. Mountings, silver.

PLATFORM-SPRING EXPRESS WAGON, OF MEDIUM SIZE.

(See Fashion Plate No. 99.)

THIS Fashion Plate represents a style of Business Wagon employed in this city for a great variety of purposes. In its outside appearance it resembles an Express Wagon, but it is more elaborately fitted, as we describe in detail below.

The sides and rear are closed with either canvas or panels. If panels are used for the top part on the rear, they are not made stationary. The part above the tail-gate consists of two doors hinged to the rear uprights, and held secure in the center by a lock. The tail-gate is secured to the body in the usual manner. The top sections of the sides of some wagons are molded as shown in this drawing, while others are left quite plain. The lower panels of the body are even with the top rail of the body on the inside, and are secured to the framework by screws. The top panels are even with the outside of the body, and the joint is covered by a molding. Horizontal slats are fastened to the uprights on the inside, as shown in the drawing. A regular buggy seat is adopted for the driver's-seat, and this is secured to raisers which rest on slats screwed against the top rail of the body. The seat is movable. The gearing is of the usual platform-spring pattern.

Dimensions.—Width of body over all, 47 in. Height of wheels: front, 3 ft., and rear, 4 ft., without the tire. Depth of rims, 2¾ in. Size of spokes, 2 in. Number of spokes, 12 and 14. Stagger of spokes, $\frac{3}{8}$ in. Hubs, 7 in. diameter. Front bands, 5¼ in., and back, 5¾ in., inside diameter. Length of front bands, 2 in. Length of hubs, 9 in. Tire, $1\frac{1}{8} \times \frac{5}{8}$ in.

The front springs are platform. The side-springs are 45 in. long, from out to out, with 7 in. set over all. Width of steel, 2½ in. Number of plates, seven, namely: the first three No. 2, and the other four No. 3 steel. The cross-spring is 43½ in. long, from center to center, with 7 in. set over all. Number of plates, seven, namely: the first three No. 2, and the other four No. 3 steel. The rear springs are platform. The side-springs are 46 in. long, from out to out, with 8 in. set over all. Width of steel, 2½ in. Number of plates, seven, namely: the first four No. 2, and the next three No. 3 steel. The cross-spring is 43½ in. long, from center to center, with 8 in. set over all. Width of steel, 2½ in. Number of plates, seven, namely: the first four No. 2, and the rest No. 3 steel. Axles, 1½ in. Track, 4 ft. 8 in., from out to out.

Finish.—Painting of the lower panels, dark green; center or sign panels, carmine; and the top panels, cream color. The center and top panels are ornamented with a narrow stripe of black and fine lines of gold. The uprights of the lower body are striped with fine lines of yellow.

low. Gearing, carmine, with a broad stripe and two medium lines of black at a distance. The cushion is trimmed with black enameled duck.

CHICAGO BEER TRUCK.

(See Fashion Plate No. 100.)

THIS Chicago pattern of vehicle for conveying beer in kegs differs widely from the wagons employed in our Eastern cities between the brewer and the retailer. Whether a Truck thus constructed will accommodate as many kegs as the large wagons here used for the same purpose, seems doubtful, but we are assured by our correspondent that a Truck of this size, if properly loaded, will hold many more kegs than would be thought possible.

The body consists of a double frame. (See drawing.) The two lower sills rest on the rear spring-bar and the three top bolsters of the front gear. The bottom sills set in considerably from the outside of the top sills, and the space between is filled in with hard-wood slats. A slat of the same material is secured to the outside of the lower sills. The kegs rest against the top and bottom sills in a slanting position. To prevent the top beam from bulging out when the Truck is loaded, a plate is fastened to its bottom face; and further strength is afforded by several iron braces extending from the bottom sills to the top beams. Three iron hooks are fastened on each side to the bottom sill, two of these being placed close together near the center, and one near the end. Iron chains are thrown across the loaded Truck, and fastened on each side to the hooks. The front seat rests on two cross-springs, which are attached to two iron uprights, and the latter are bolted to the top beam.

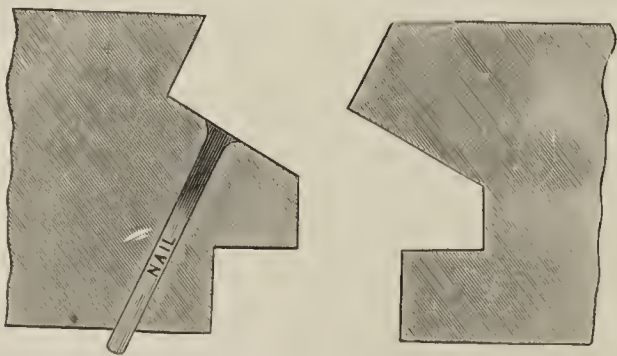
Dimensions.—Width of body across the top beams, 4 ft. Height of wheels: front, 3 ft. 2 in.; and rear, 4 ft. Depth of rims, 3 in. The rims are made in three sections. Size of spokes, $2\frac{1}{2}$ in. Number of spokes, 16. Hubs, $6\frac{5}{8} \times 11$ in. The wheels are of the Sarven patent. Flange, No. 57. Tire, $2\frac{1}{2} \times \frac{3}{4}$ in., iron.

The front springs are platform. The side-springs are 42 in. long, from center to center eye, with $9\frac{1}{2}$ in. set over all. Width of steel, 3 in. Number of plates, fifteen, namely: the first two No. 2, and the rest No. 3 steel. The second and third plates are wrapped half around the spring-eyes. The cross-spring is 36 in. long, from center eye to center eye, with 9 in. set over all. Width of steel, 3 in. Number of plates, fourteen, namely: the first two No. 2, and the rest No. 3 steel. The second and third plates are wrapped half around the spring-eyes. The rear springs are platform. The side-springs are 44 in. long, from center eye to center eye, with $12\frac{1}{2}$ in. set over all. Width of steel, 3 in. Number of plates, seventeen, namely: the first two No. 2, and the rest No. 3 steel. The cross-spring is 36 in. long, from center to center eye, with $10\frac{3}{4}$ in. set over all. Width of steel, 3 in. Number of plates, sixteen, namely: the first two No. 2, and the rest No. 3 steel. The second and third plates are wrapped half around the spring-eyes. Axles, 3 in., of Concord make, with solid collars. Track, 3 ft., from out to out.

Finish.—Painting of the body, blue, with fine lines of yellow. Gearing, yellow, with two heavy stripes and one medium line of black. Cushion of the driver's-seat, black enameled duck.

IMPROVED METHOD OF BLIND-NAILING.

OUR readers are doubtless familiar with the ordinary method of "blind-nailing," so-called, used in putting down the hard-wood floors now so much in vogue. The following cuts illustrate an improved process, lately introduced in England, which we think will at once commend itself.



It will be readily understood from the illustration, and it is obvious that it is as well adapted to wainscoting or dados as to floors. It is easier both to put down and to take up than the old style, and there is no reason why the preparing of the boards by machinery should be any more expensive than for the ordinary "matching."

CITY FATHERS, PLEASE NOTE.—'Bus driver: "Lor! Gents, I wish 'Olborn 'Ill was in Hafrica or Hasia." Passenger: "Why, coachman?" 'Bus driver: "'Cos then, p'r'aps they'd have a c'lection at the Mansion House, and send a bit of gravel in slippery weather."—*Fun*.



HOW NOT TO GLUE ON THE UPPER QUARTER PANEL OF A COUPÉ-ROCKAWAY.

THIS is a practical question which every body-maker ought to understand, both theoretically and in practice, and perhaps the majority do, but there are certainly many who do not glue on such panels in the right way, and defective results are not uncommon.

The placing of the first handscrew at the proper place is a first condition of success. After the panel has been fitted, the place for the glass cut out, and all cauls fitted and prepared, we are then ready to proceed to glue. The first handscrew must be placed at the rear bottom corner of the glass, and the panel must be screwed down solid. After this has been done, it does not matter much which other parts of the panel are screwed on first or last. This rule is particularly essential in the case of bodies having great swell, and where the cheat line is resorted to, or where there is a space of 5 or 6 inches between the bottom of the panel and the bottom of the glass.

How not to do such work can perhaps best be explained by the following brief history of the experience of one who thought he knew it all.

In the shop where the writer was employed for many years, a journeyman body-maker, who was a stranger to us all, once applied for work.

"What can you build?" asked the employer.

"Most anything, from a wheelbarrow to a landau," was the prompt answer.

All hands of us were, of course, exceedingly glad to have such a genius for a shopmate.

The first job undertaken by the new man was a jump-seat, and a jump-seat it was! He explained, however, that having built paneled work for some time past, he was somewhat awkward on light work. The next job apportioned to him was a Coupé-Rockaway with glass quarters, but it soon became evident that he did not know how to dress even the simplest piece of timber, while so self-conceited that he did not care to ask help from his fellow-shopmates, who would willingly have assisted him.

The body was finally advanced far enough to have the upper quarter panels put on, though by no means completed, being, to use a shop phrase, merely "murdered up." By this time we all had an eye on him. Before fitting the panel, he began to make preparations for boiling a great kettle of water with which he proposed to thoroughly soak the panel and make it soft and pliable. At this point he was politely informed by the foreman that such panels needed only to be moistened by a very little water, and then brought in contact with a hot stove, and the foreman further pointed out a number of similar jobs, either finished or in course of construction, whose upper panels had been put on in that manner.

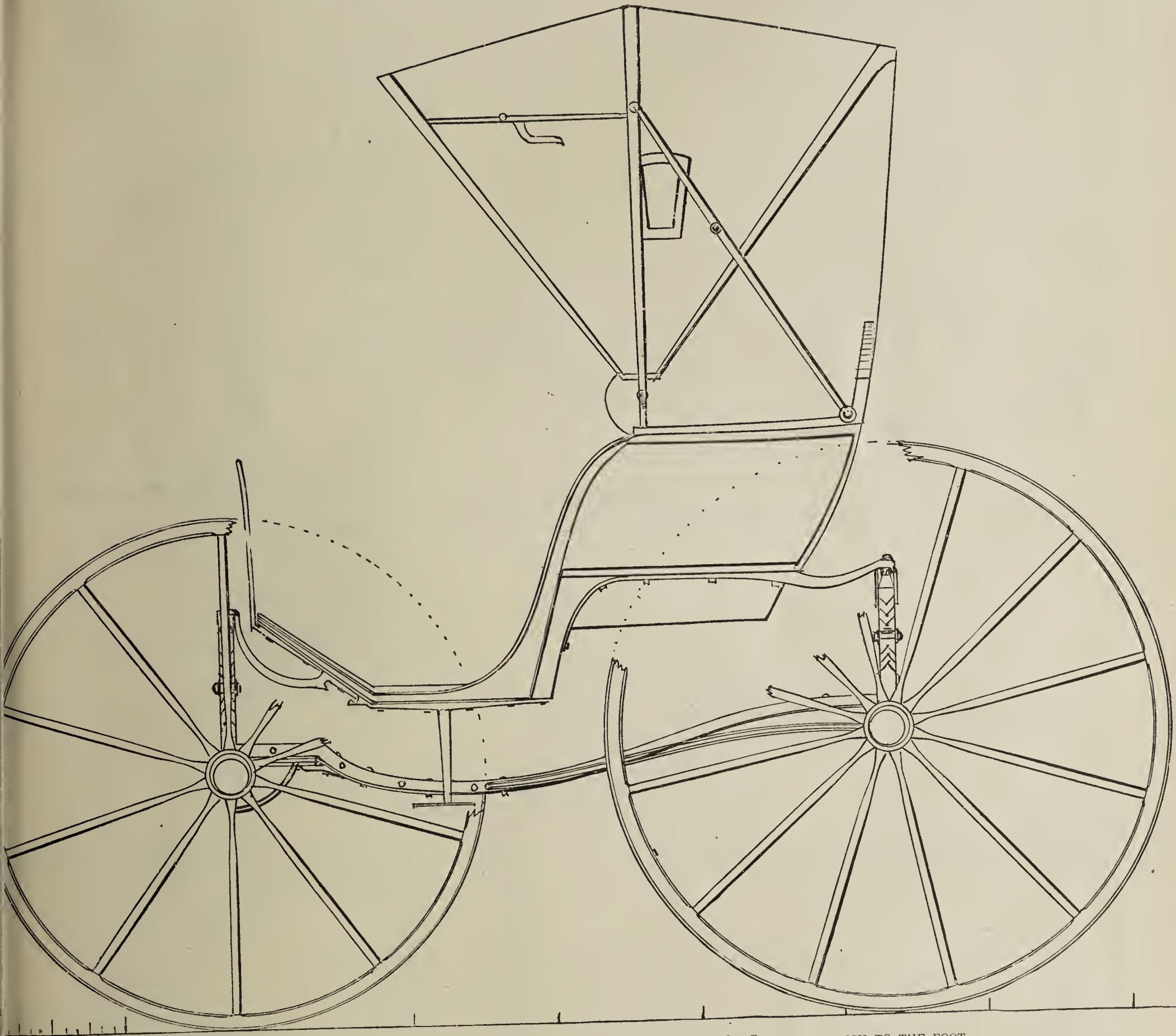
Finally the panel was fitted, and the gluing came next in order. Instead of asking the assistance of another body-maker, our friend, in spreading on the glue, undertook the job all by himself; but after it was on, he called for assistance to fasten up the handscrews. The body-maker who went over to assist him found hardly a single caul fitted properly, and there was not a handscrew near his bench. While the assistant was hunting for handscrews, the new body-maker himself was trying to fasten the panel to the corner-pillar. The cauls for the corner-pillar and arm-rail were combined as usual. He fastened the caul near the top-rail first, and then at the rear bottom corner; and while forcing the panel to the proper place at this point, the panel bulged out toward the top, as might have been expected; and the rear bottom corner of the aperture for the glass, being a weak point, naturally gave way and caused the panel to split. The panel, of course, had to be taken off.

It happened that the employer came into the wood-shop in the midst of the trouble, and our new friend asserted that if he could only have had his way and softened the panel with boiling water, the accident would not have happened. The employer said he might have his own way with the next one. So a second panel was made ready to fasten in place. Handscrews and cauls were on hand this time, and the panel was well watered and heated. The process of fastening the panel to the body was the same as in the first instance, and, naturally, with the same result. Notwithstanding the steaming process, the panel split at precisely the same place. The woe-begone countenance of the body-maker was this

time rather amusing. The employer again came in just in time to see the second panel split. He then informed the body-maker that he thought that he was not capable of putting on the panel, and requested another body-maker to undertake the job, which did not make any difference, as all hands were working by the week. While fitting and gluing the panel, the unlucky body-maker watched the process very closely, and when he saw the man put the first handscrew at the rear bottom corner of the glass, and then proceed without any trouble and without splitting the panel, he remarked: "Well, if some one had drawn my attention to that, the accident would not have happened."

effectual way of accomplishing the purpose is to take a gauge, say $\frac{1}{2}$ in. wide, and with this cut a groove in the panel about half its thickness, and an inch longer than the split. [If possible, glue a strainer on the inside of the panel opposite the split.] Then fit a half-round molding into the groove, and glue this molding solid to the panel. After being dry, clean off the molding; and, if the body is in an advanced state of painting, a little below the surface.

A half-round molding is preferable for this purpose to a square or a three-cornered molding, both because it is stronger and because it always forms a miter joint.



NASE'S PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.—SCALE, ONE INCH TO THE FOOT.

(See description accompanying.)

Our rejoinder to this remark was, that we were always happy to assist a brother body-maker, but it hardly could be expected under the circumstances, after services offered on several previous occasions had been rejected with the remark that he thought he "knew his own business."

The accident happened on a certain Thursday. Discharge of the body-maker followed on the next Saturday.

HOW TO PATCH UP A SPLIT PANEL.

WE do not commend the practice of trying to cover up splits in panels, believing, as we do, that the only proper remedy in such cases is the introduction of new panels; but it may occasionally occur that time or circumstances will not permit of putting in a new panel, and the patching method will then have to be resorted to. In such instances, the most

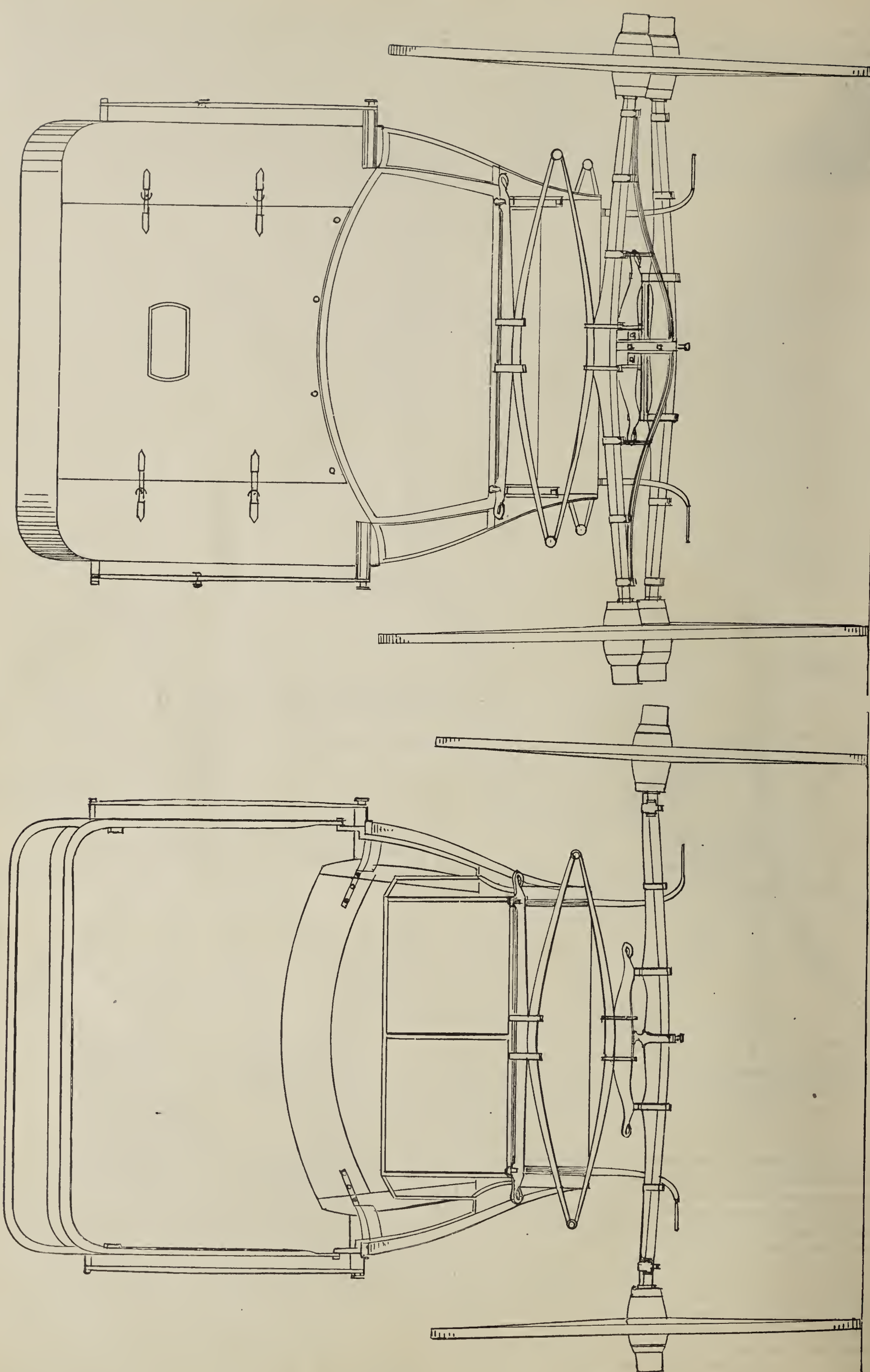
If the painter afterward performs his duty well, such a repairing job as this can be prevented from showing for a considerable time; and, in several instances in the writer's experience, where the necessity occurred for thus doctoring up splits, and which we watched closely, we found that, after two years, no sign of patching could be detected,—which was all the more gratifying as one of the vehicles was owned by a physician.

DESCRIPTION OF NASE'S PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.

(Designed by Mr. Charles Nase, of No. 315 West 43d-street, New-York City.)

(See Four Illustrations accompanying.)

My drawings have been carefully drawn to the scale of one inch to the foot, and any peculiarities presented will no doubt be readily perceived



NASE'S PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.—SCALE, ONE INCH TO THE FOOT.
(See description accompanying.)

and understood by the Committee on Awards. I will therefore confine my description to the following table of the principal dimensions.

Body, length, 53 in., over all, divided as follows: 25, 21 and 7 in. Width, 43, 36 and 30 in. Seat, 11 in. from floor. Side quarter, 11½ in. high in front, and 12 in. at rear. Panels, ⅝ in., grooved in. Arm-rail, 1 in., added. Back, 21 in. high on square line, and 32 in. wide. Bottom, 35 in. at arm-rail. Sills, 2¼ in. wide at front, and 1¾ in. at back. Bracket, 10 in., and 8 in. rise. Base of body, 15 in. Bottomside, 1½ in. deep. The box is made for 4 in. drawers. Top, 45 in. from seat to center bow. Drop of back bow, 4 in.; front, 5½ in. Spread, 43 in. Center bow, 44 in. wide, and back bow, 43½ in. Side light, 3, 2 × 5 in., and rear light, 3½ × 7 in.

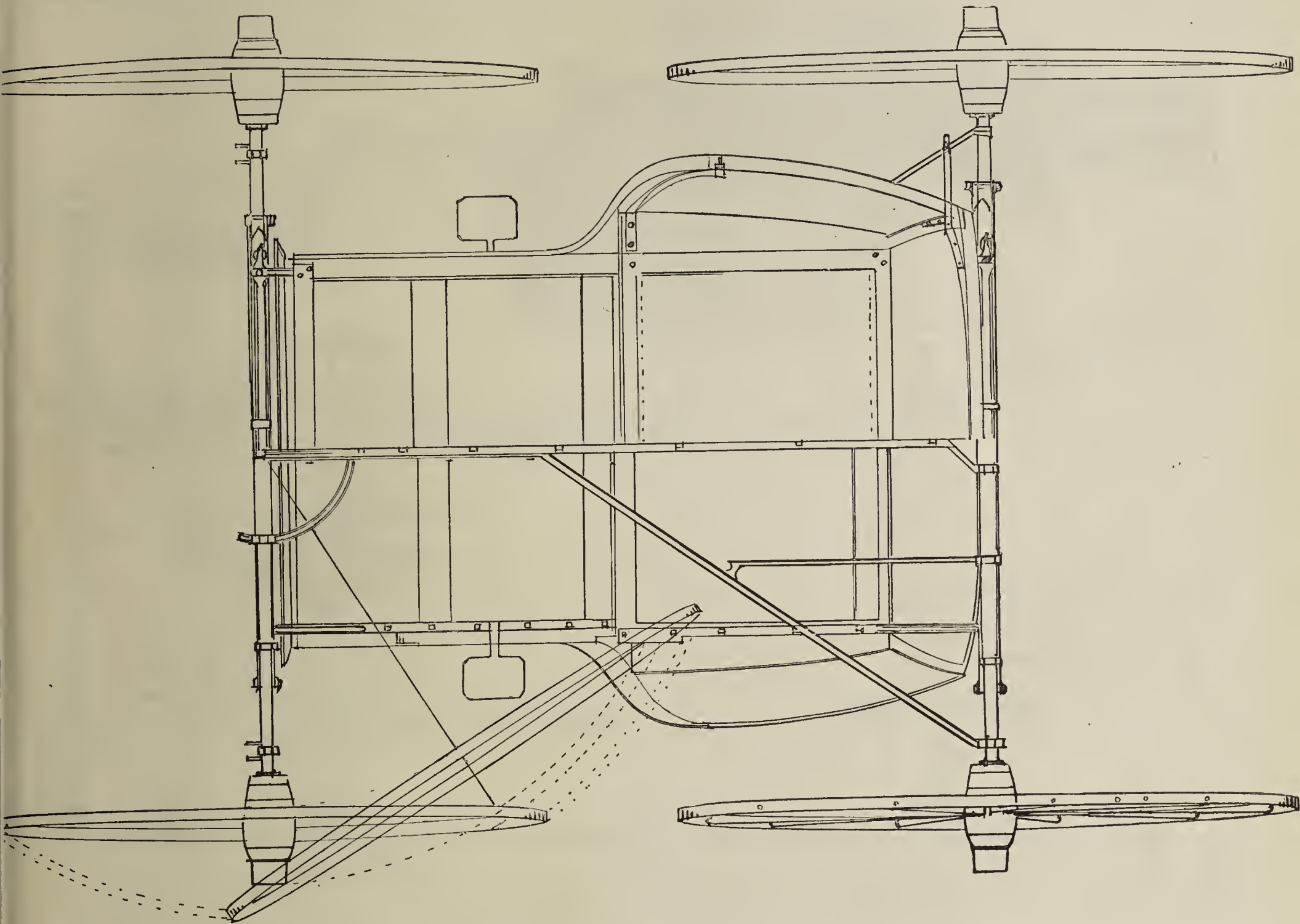
Wheels, 3 ft. 7 in., and 4 ft. Spokes, 1⅜ in. Rims, 1¼ in. deep. Hubs, 4 × 7 in. Bands, 2¾ and 3 in. Head-block, 1¾ × 1⅜ in. Front spring-bar, 1¾ × 1⅜ in.; and back, 1⅞ × 1½ in. Perch, 1 in. square, with bend. Axles, steel, 1 in., with swell taper arm. Hubs, 7 in.

RECENT UNPOPULARITY OF ROCKAWAYS IN POLICE CIRCLES.

BENJAMIN RICHARDSON, the eccentric Harlem millionaire, who lives in a block-house, and warns all old maids off his premises, kept the Police Department in a state of violent commotion recently over the loss of his ramshackle old Jersey rockaway, a vehicle in which he rides around, and which, in apparent age, rivals his other possession, Washington's state-coach.

Mr. Richardson was down-town on New Year's eve and left the rig in front of a store, where some very needy thief saw and appropriated it. The owner hastened to Police Headquarters and alarmed the force with a wail over his loss. Yesterday he returned to find that the horse had been recovered in the Skinners' Market, the East-Side horse mart. The wagon was still missing.

Mr. Richardson wrote out a description of it covering a page of fools-



NASE'S PRIZE WORKING DRAWING OF PHYSICIANS' PHAETON.—SCALE, ONE INCH TO THE FOOT.

(See description accompanying.)

Front spring, 36 × 1⅜ × 8½ in., 4 plates, Nos. 3 and 4 steel. Back springs, 33 × 1½ × 8 in., 4 plates, No. 3 steel.

Fifth-wheel, Norway iron, half-circle, 14 in. At bearings, ⅞ in. Shaft-irons, Burden's flat oval, 1⅜ × ¼ in. Bolts, ⅝ in. Jack-clips, flat, 1⅞ in. Screw-ends, ⅝ in., round. Ears, ⅞ in. Axle-clips, ⅞ in., flat. Screw-ends, ¼ in., round. Perch-plate ends, Norway, flat, ⅞ × 1 in. Side-stays, main, B. B. iron, ⅞ in., round. Inside, ⅞ in. Ends at heels, Norway, ¾ × ⅜ in. A clip kingbolt is used. Boss to fifth-wheel stay, Norway iron, ⅞ in. Hang-irons, Ulster iron, oval, 1 in. front, and 1⅞ in. back; and at base, 1⅞ in. Bolts for base and butts, ⅜ in., additional ¼ in. Tire, steel, 1 × ¼ in. Bolts, ¼ in. Step-pads, 4 × 5 in. Shanks, ¾ in. Dash, B. B. iron, oval, ⅞ × ⅜ in., 14 in. high. Handles, ⅜ in., round. Stump-joints, ⅞ × 1⅛ in. Piece part, ½ × ¾ in. Oval front, inside of bows, ½ × ¾ in. Piece part, ⅞ × ⅞ in. Rocker-plates, ⅞ × 1¼ in. Screws, 1¼ in., No. 14.

Painting, dark green, with ⅞ in. black stripe on the gear. Trimming, leather top, spring back, and cushion of sheepskin. Head-lining, green cloth.

Respectfully submitted,

CHARLES NASE.

315 West 43d-street, NEW-YORK CITY.

cap, and the force was still further alarmed by the following notice, sent out by the Superintendent: "Look for that old-fashioned Jersey rockaway wagon. Sent out alarm yesterday."

The department had settled down to a state of comparative rest in the afternoon, when it was stirred once more by a telegram from Harlem that was signed "Benj. Richardson," and read as follows: "Forgot to state that black rockaway has red wheels streaked with black."

When the sergeant on duty recovered from this blow he locked and bolted the door, and swore vengeance against any one within hearing who should mention the word "rockaway" to him again before next June.

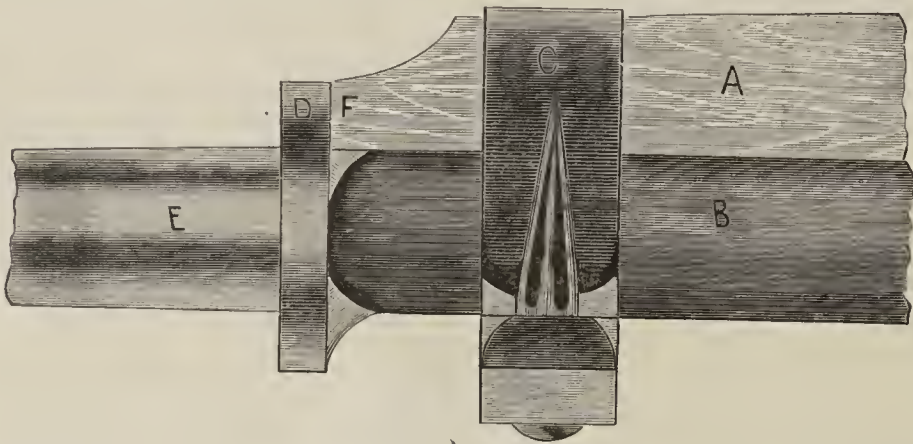
AN exchange remarks that the moon is just right now for buggy riding. No doubt it is, but the average young man prefers to ride with a pretty girl.

FIRST CABMAN—"What did you charge that stranger for driving him around the corner to the hotel?" Second Cabman—"I charged him \$4.97." "\$4.97? That is a queer figure. Why didn't you make it an even \$5?" "Because \$4.97 was all he had."—*Philadelphia Call*.



HOW TO PUT ON AN AXLE-BED.

WHEN the axles have been set, and are ready for the finisher, file a square corner back of the top side of the collar, at D, as shown in the accompanying sketch; and fit the bed as at F.



You will then find that the end pressure upon the bed will materially aid to strengthen the combined axle and bed, which is more particularly desirable in light work, where deflection is most perceptible.

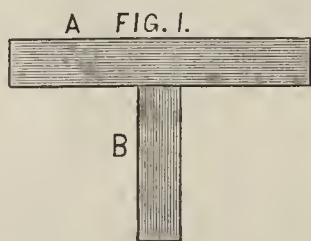
I recommended the above mode with confidence, for I have seen good results from it.

In the above sketch, A represents the bed; B, the axle; C, the clip; D, the collar of the axle; and E, the axle-arm. R. H. L.

HOW TO REMOVE STUCK BOXES FROM AXLE SPINDLES.

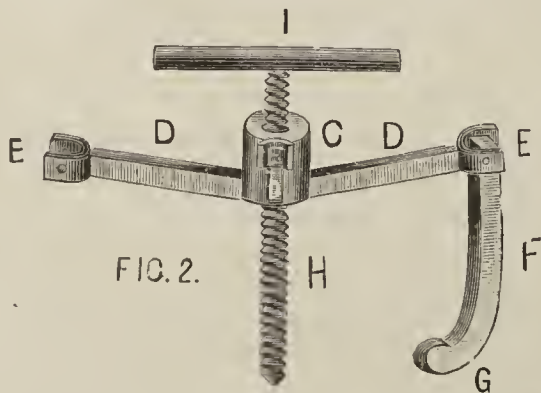
EDITOR OF THE HUB—DEAR SIR: Please inform me as to the surest and safest method for removing boxes which have become fast, commonly called "stuck" (a shop phrase), on the axle. S. H.

ANSWER.—We illustrate below a handy tool for the purpose named. The whys and wherefores of boxes becoming set to the spindle are numerous, and will not now be explained, but this appliance is well calculated to help cure this frequent trouble.



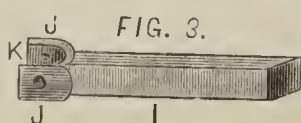
To begin with, take a bar $1\frac{1}{4}$ in. square, as shown by A in Fig. 1, and 10 in. long. Upset at the center.

Then take a piece of the same iron, as per B, Fig. 1, 5 in. long, and upset at one end, and weld to A, thus forming a T.



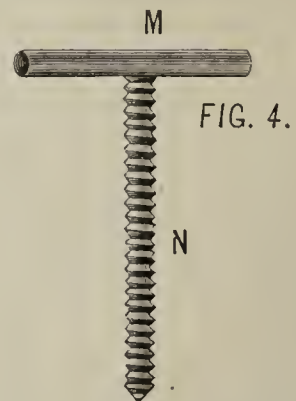
After the welding is completed, bend the two parts where they intersect with B, so that each piece forms a tripod on an angle of 120° .

Then prepare a circular block, $1\frac{1}{2}$ in. in diameter, and $1\frac{1}{2}$ in. deep, weld this on to the tripod, and you thus get the rise or hub shown in Fig. 2, which drill out for a screw-pin $\frac{7}{8}$ in. in diameter.

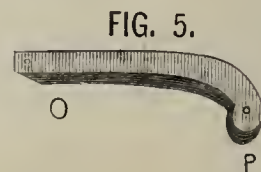


Next split the end of each arm, as in Fig. 3, J J, and form the fork K, —L being a section of the arm. The inside measurement of the fork, to

work best, ought to be $\frac{3}{8}$ in. wide, and $1\frac{1}{4}$ in. deep from the ends of J J to the back or inner end of the fork K. Through each portion of the fork drill a $\frac{3}{8}$ in. hole.



Now make the screw-pin, Fig. 4, where M shows the lever, and N the screw; and fit this in Fig. 2, where H represents the pin, I the lever, D D D the arms, and E E E the forks.



Next make the clutch hooks (three in all), as per Fig. 5, of iron, $\frac{7}{8} \times \frac{5}{8}$ in. O is the end which fits into the forks E E E, Fig. 2, and which is secured by a bolt passing through it. P is the lower end, which fits in the clutch, as shown by Figs. 6, 7 and 8, singly and collectively. F and G, in Fig. 2, represent the clutch-hook as adjusted to the arms D D D.

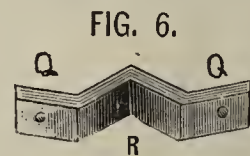


Fig. 6 shows the method of making one of the three portions of the clutch or grip, which is of steel, $\frac{3}{4} \times \frac{1}{2}$ in. The ears Q Q are 1 in. long; and the space R from Q to Q is $1\frac{1}{4}$ in. wide and $\frac{3}{4}$ in. deep. Drill Q Q for a $\frac{3}{8}$ in. bolt.

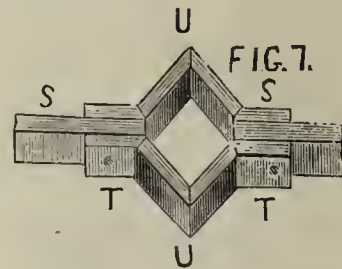
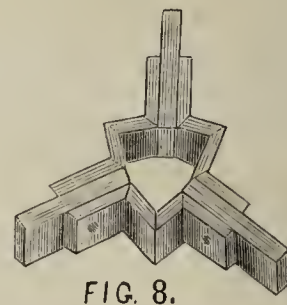


Fig. 7 shows the adjustment of the clutch-hook to the clutch or grip: S S, the hooks; U U, two parts of the grip or clutch; and T T, the securing bolts.



When three of the above are placed together, and the hooks adjusted, they look as shown in the sketch, Fig. 8. It will be well to have two or more sets of these, to fit the various sizes of boxes.



The last requisite is a series of plugs, as shown in Fig. 9, about 2 in. long, and 1 in. in diameter, which is a suitable size to permit the box to pass over them. Bore them about half-way through, to permit the insertion of the threaded part of the spindle; and then, with a large countersink, form a seat or rest for the point of the screw-pin H and N, Figs. 2 and 4.

Now comes the tug on the box. After the hooks are all in position, loosen all the bolts of the clutch or grip, set back the screw, and place the grip on the box, back of or near the ears. Then set up on all the bolts of the grip until it hugs the box closely, or just enough to prevent slipping. Then insert the block, Fig. 9, on the threaded part of the axle, and set up with the screw pin. [It may be necessary to pass a stick between the hooks to prevent turning.]

If the box does not yield readily, then insert a little spirits of turpentine and thin oil, and place a setting punch against the butt of the box,

and tap lightly with a light hammer, keeping up the pressure on the screw.

It may be found necessary to expand the box, which can readily be done by the application of red-hot tongs to the exterior.

If the screw-pin is furnished with a square thread, it will enhance its value.

We have never made use of the above device, but have seen less serviceable ones in use, and this ought not to cost more than \$5 to complete.

N. Y. S.

DESIGN OF GEARING FOR COUPÉ-ROCKAWAY.

(See three Illustrations accompanying.)

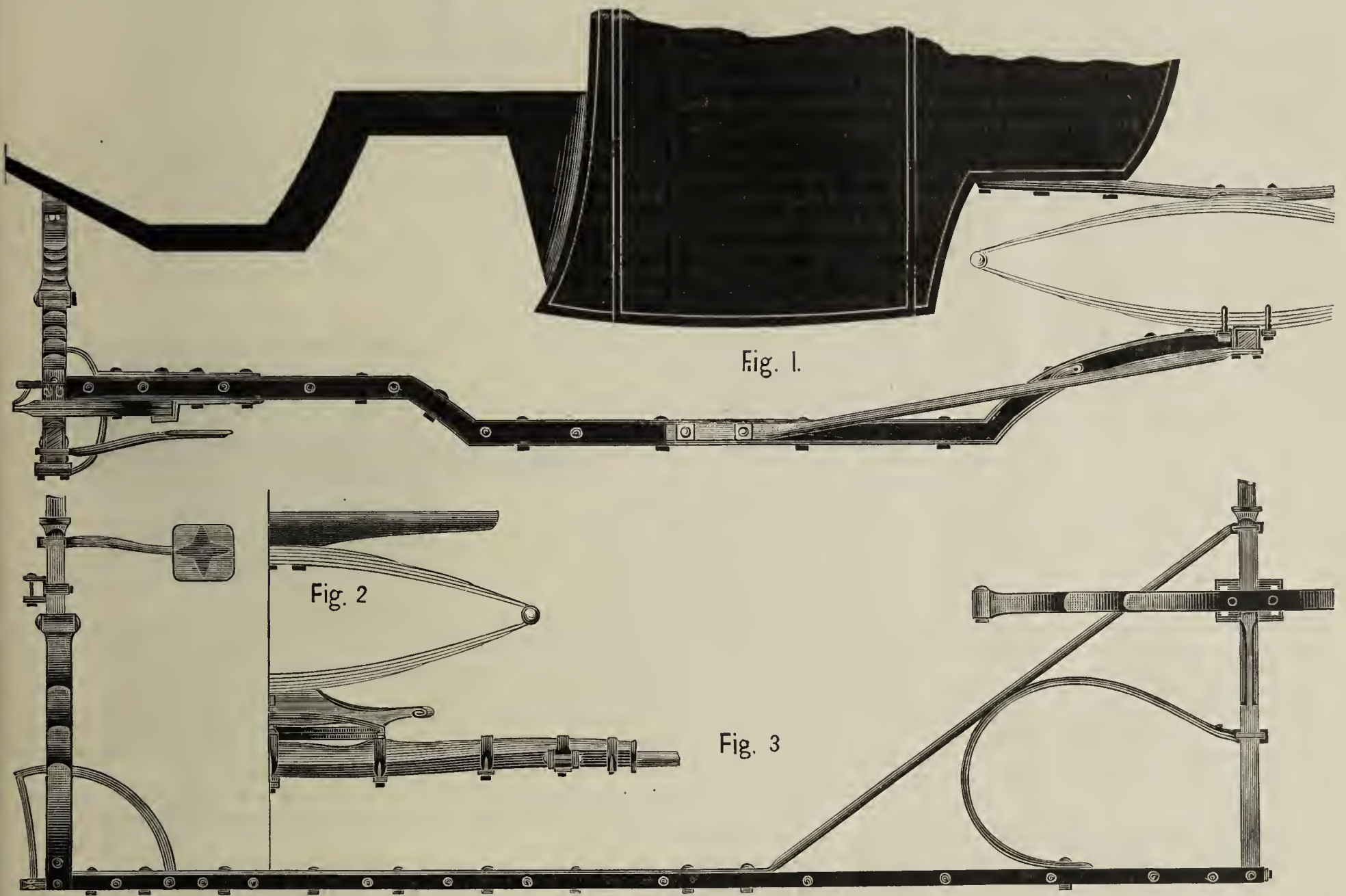
In the case of all gearings intended for Coupé-Rockaways, the sweep of the axle-beds, and the height of both the springs and the wheels, depend in a great measure on the shape of the body and its height from the ground. The body intended for the gearing herewith illustrated is

it gives a somewhat unfinished look. No wooden axle-bed is used for the rear axle, but only an iron axle. In front the step is clipped to the bottom of the axle.

We give below some of the principal dimensions, as follows: Wheels, 3 ft. and 4 ft. high. Axles, $1\frac{1}{4}$ in. Springs: front, 37 in. long, with $10\frac{1}{4}$ in. opening over all. Width of steel, $1\frac{1}{2}$ in. Number of plates, five, namely: the first three No. 2, and the other two No. 3 steel. The rear springs are 38 in. long, with 9 in. opening over all. Width of steel, $1\frac{3}{8}$ in. Number of plates, four, namely: the first two No. 2, and the other two No. 3 steel. Track, 4 ft. 8 in., from out to out.

HINTS TO APPRENTICES IN CARRIAGE SMITH-SHOPS.

I HAVE just read Mr. A. P. Daire's article in the January *Hub*, page 698, regarding the need of an apprenticeship system in carriage paint-shops, and Mr. Daire has certainly struck a blow in the right direction



DESIGN OF GEARING FOR COUPÉ-ROCKAWAY—SCALE, ONE INCH TO THE FOOT.

(See description accompanying.)

hung about 25 in. from the ground, which is as low as is practicable in connection with 3 ft. front wheels.

Three different views of this gearing are given, namely: Fig. 1, showing the side elevation; Fig. 2, the half front view; and Fig. 3, the half top view.

In Fig. 1, the side elevation, the bottom lines of the body are shown, and the principal feature of the gearing, namely: the perch. The wooden portion of this perch should not be more than $1 \times 1\frac{1}{8}$ in., and it is then plated on all four sides. This perch can be either sawed out, or made of bent timber. In the latter case, we would advise making the perch heavy enough to work in the sharp corners. The distance of the perch from the top face to the bottom of the body is about 6 in., which is sufficient to prevent the body from striking the perch when loaded and in motion.

Fig. 2, the half front view, indicates more clearly the size and shape of the axle, axle-bed and head-block, and also the height of spring, and the spring-bar. The axle and axle-bed are swept downward to obtain the proper opening of the spring, which is about $10\frac{1}{4}$ in. over all, and this distance should not be lessened.

In Fig. 3, the principal features deserving of notice are the position and shape of the rear perch-stays. The outside stay is straight, while the inner stay is curved. In several shops we have observed that the inner stays were made straight, but we cannot recommend that style, as

I do hope that carriage manufacturers will take hold of this matter, and promptly determine how something can be done by which all branches of the trade may be improved.

There is an equal need of a good apprenticeship system in the carriage smith-shops. As a carriage smith of twenty years' experience, seven years of which time I was engaged in running a shop, I have found it almost impossible to get good boys to work in the smith-shop department. The boys of to-day do not appear to want to learn a trade. They are all the time looking for something soft to work at. They would rather go into a store and work fourteen hours a day, and get two or three dollars a week! I fear that one great trouble with American boys of to-day is, that they know too much,—or think they do. When you explain a piece of work to them, and take pains to show them how it should be done, they do not seem to pay any attention to it, but go ahead and do it their own way. I want now to say a few words to the boys who are working in the different branches of the carriage-shop.

First, I want to ask you, boys, this plain question: What are you working for? Are you working to learn a trade, or are you merely working for the money you receive each week, and just to put in your time? Do you ever think of your future after you become of age, whether you will have a trade by that time, or not? Now, boys, you must not get angry with me because I am going to tell you why you do

not properly learn your trades, but I want to say something about the smith-shop, and about the boys who set in to learn the smith trade.

Boys, in order to learn this trade, you must keep out of the saloons, and not go to many shows. Do not read flashy literature. Keep your mind on nothing but your trade. Let your mind be on your work when you retire to bed, and be still there when you rise in the morning, which should be at five o'clock, or in ample time for you to get to the shop, and have your fire blowed up, and the tools put in their respective places, before the day's work begins. Sweep out your part of the shop; and, if you have any time to work on the fire, it is well to do so. I would suggest that you take scrap and weld up, and practice on all the different irons that go into a buggy. It would be well if two boys who are helpers should thus go together to the shop, out of working hours, and practice with each other, and help each other. During such practice, keep your mind constantly on your work, and, throughout the day, try and drive out all thoughts of any song-and-dance man; or that fellow you were going to lick; or how you did that fellow up at cards or billiards, or how many glasses of beer you got away with last night which did not cost you anything. You must have a taste for your work, and you must keep your mind on that if you mean to progress. When you strike, stand in front of your anvil, and raise your sledge straight up and down with a lick that will draw out the iron without twisting or putting holes in it. Do your work to please your boss. By following the above advice you will take so many steps toward succeeding in learning your trade.

The boys in the paint-shop have somewhat better chances than the boys in the smith-shop, if they are ambitious to learn their trade, as they can practice striping, scrolling and lettering at home during evenings. Boys, did you ever think of having a little paint-shop of your own at home, where you could thus practice evenings? Supposing you start one, if you have not already done so. You can easily get an old wheel to practice striping on, and you can fill in a number of small boards, and cover them with scrolls of different designs. If either the smith's or painter's apprentice can afford to take drawing lessons, that will also help. A knowledge of free-hand drawing is especially valuable to the smith, who has to be guided mainly by his eye.

SCOTT SMALLWOOD.

HOW TO CONSTRUCT A TRUCK FOR TRANSPORTING GLASSWARE.

INDIANAPOLIS, IND., Feb. 9, 1885.

EDITOR OF THE HUB—DEAR SIR: We are compelled to come to you again for information. This time it is something novel to us, but very likely it will not prove a novelty to you, as nothing appears to bother you when your correspondents ask for information.

We have been asked to present sketches and prices for constructing a Truck for the transportation of glass in bulk; and if we can show a safe plan, we shall no doubt receive the order. The specifications call for a two-wheel Truck with body hung quite low. What we most want to know is, how shall we make and secure the axles (no springs are required), and also how shall we secure the thills?

Yours truly,

SUBSCRIBER.

ANSWER.—In Fig. 1, we show one-half the axle for one side of the Truck called for, A being a section of the axle-arm; B, the washer, which is of iron, made loose, and shrunk on after the axle is completed, set and adjusted; C is the space between the washer and vertical portion of the crank D; and E, the bottom or horizontal portion of the axle. The axle is jointed to D by means of the jump-welding process, or by

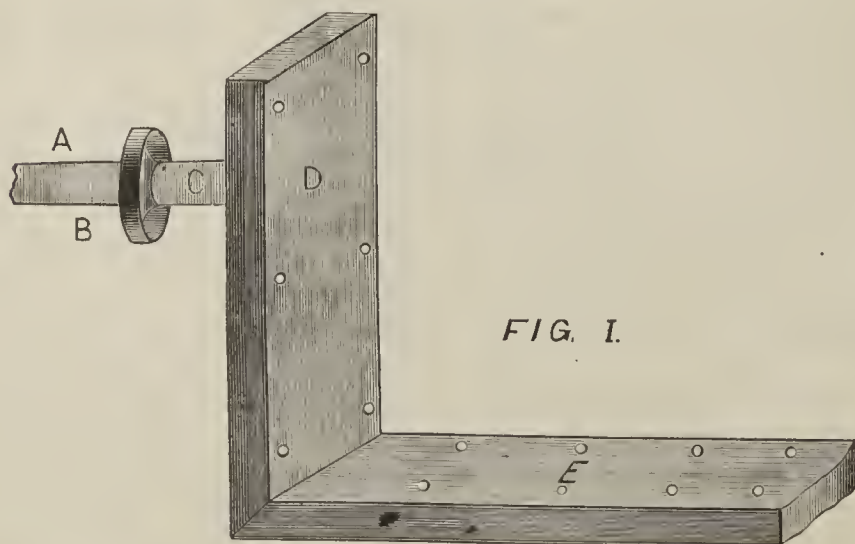


FIG. 1.

the solid process of splitting and flapping. The square part C ought to be 3 in. in caliber, and not more than 3 in. long. The arm at the washer is $2\frac{3}{4}$ in., and at the point $2\frac{1}{4}$ in.; and about 12 in. long. The vertical plate D and horizontal plate E are not less than 4 in. wide and 1 in. thick, with six holes on D, and ten holes on the horizontal part E (the whole length), as marked. The bolts should caliper not less than $\frac{3}{4}$ in.

To secure the axle and prevent the body from collapsing at the top, make a frame (in height to suit packages) of good stiff oak or tough butt ash, 6×2 in., of the form shown in Fig. 2, which represents one corner, F being the top beam on the horizontal bar; G, vertical section of frame; and H, section of the axle showing the washer. The axle should be placed at a proper position to attain the required height from the base line to assure a proper balance. Plate the top bar with $4 \times \frac{3}{8}$ in. iron,

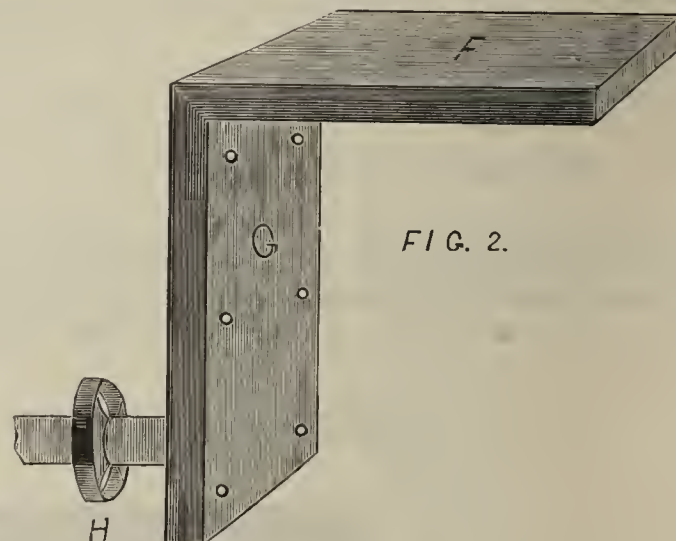


FIG. 2.

and allow it to extend down and overlap the upper portion of the vertical portion of the axle C. Place a corner-plate of the same size on the inner section, to extend each way far enough to take your bolts. The sill portion of the frame, forming the axle stock, should be 3 in. thick, and have a corner-plate $4 \times \frac{1}{4}$ in., secured by two bolts on each angle, the plate to be let into the bottom and side after these are placed in position.

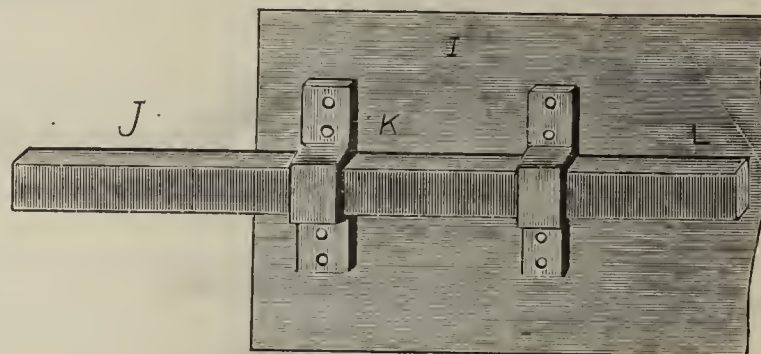


FIG. 3.

Make and secure the thills in the manner shown by Fig. 3, wherein I represents a section of the body; J the back section of one thill; K, the front; and L, the back staple to secure the thill to the body, placed to suit the size of the horse.

The staples are held in position by screw-bolts, so as to permit of changing the thills with a view to balancing. The thills ought to be 2×3 in., and of best quality second-growth ash.

The above calculations are based upon a 5 ft. 4 in. track; but 2 in., more or less, will not interfere with the calculations or carrying capacity.

N. Y. S.

HIS OWN HORSE-SHOER.

HENRY WARD BEECHER relates the following anecdote of his early Western life: "My horse lost a shoe. I found an unoccupied blacksmith's shop. I started up the fire with the bellows, heated the iron, forged it out on the anvil, shaped it, and put it on; and then drove off and didn't leave a cent behind. But I stopped at the next blacksmith shop to have it fixed just right; and the blacksmith, after looking at the job, said, 'Mister, you may as well go on; I couldn't do that work better myself.' You see, I've remembered that. I felt rather proud of it."

CABBY AND CRIBBAGE.

I WAS returning from town one evening in a hansom cab, with another cadet, when it occurred to us (for cards we had always with us) to beguile the tedium of the journey with a game of cribbage. As it was quite dark we purchased an enormous and highly decorated candle, such as are used for ecclesiastical celebrations, and stuck it up between us. I had always a tender conscience, and this gave me the idea that we were committing some kind of sacrilege; but there was no help for it. I was a good deal startled, however, when an awful voice, as it seemed from the skies, suddenly thundered down upon us: "You have forgotten his heels!" It was the cabman, who, interested in the game (probably a favorite one with him), which he had been watching through his little door, thus reminded us of an inadvertence.—JAMES PAYN in *The Independent*.



INJURIOUS EFFECT OF COAL-GAS ON VARNISH.

E. 51st-st., NEW-YORK, Feb. 2, 1885.

EDITOR OF THE HUB—DEAR SIR: This winter we have had considerable trouble in our varnish-room, from coal-gas arising from the blacksmith-shop. Our shop, to be sure, is not as nicely located as we would wish it to be; but it's the best we can do. The varnish-room is directly over the smith-shop, and the gas arising from the forges seems to have a very bad effect on the varnish, by causing it to silk and lose its gloss. We know the trouble is not with the varnish, and we are pretty certain as to the true cause of the trouble; but our object in writing to you is to know if you can find a way for us out of the difficulty, and thereby help us.

Yours truly,

T.

ANSWER.—The only suggestions that occur to us are: first, to make your floor tighter by laying a thin additional floor, or caulking up the old one; and, second, to ventilate better both your smith and paint-shop. If the draught to your forges is made perfect, that will also help.

HOW TO BRONZE STEAM-PIPES.

ANNISTON, ALA., Feb. 16, 1885.

EDITOR OF THE HUB—DEAR SIR: Can you tell me, on inclosed postal or through *The Hub*, what is the best manner to bronze steam-pipes so that the bronze will not turn black?

Carriage-painters do not often do work that gets hot, but I am called upon to do a few steam-pipes (inside office work), and want to make a good durable job, and would like to find out the best size to stand heat.

Any trouble you may have to take on my account in this matter, I will willingly pay for. Such a question does not often appear in *The Hub*, but it might, if given, be of help to others,

Yours very truly,

J. A. FRY.

ANSWER.—All bronze will turn black in time, whether subjected to heat or not; but we recommend you to use the best, as that retains its color longer than the inferior grades.

The ordinary varnish size, such as carriage painters use, is not suitable for the work you speak of. There is a "Bronze Liquid," made by J. Marsh & Co., of Park Place, New-York City, that house painters use for this work, which stands well, and will hold its color for a year or thereabouts. The directions for using it are as follow: Take the best powdered bronze you can buy, mix with the "Bronze Liquid," and apply it in the same manner as you would an ordinary varnish or paint.

L.

HOW TO MIX DROP-BLACK.

ARDLEIGH, ESSEX, ENG., Feb. 3d, 1885.

EDITOR OF THE HUB—DEAR SIR: I fully indorse your remarks in reply to H. W. E., in the November *Hub*, page 551, regarding color cracking.

In the early part of my experience I was troubled in a similar way, and I traced the cause to soft paint (the under coats not being dry.) Of late years, in following the English lead-and-oil system, I mix a little red-lead with my first coats of lead color, and gradually reduce the oil and red-lead as I proceed, and omit the red-lead altogether from the last lead coat; I then mix my drop-black with gold-size, and add a little oil. By following the above rule, and giving each coat as much time as I can get to dry, I have no trouble with my black paint cracking.

In my opinion, red-lead added to the *first* coats of lead (especially in damp weather) hardens the paint, dries quicker, and makes it more durable.

Some painters mix their drop-black with varnish. Which, in your opinion, is best?

Yours truly,

M. W.

ANSWER.—In response to the question which occurs at the close of our correspondent's very interesting letter, we beg to say that we prefer to mix our black in good brown japan. We prefer brown japan to japan gold-size in this connection, providing it be a first-class article, for the reason that painters are apt to use too much of the stronger japan gold-size, and thereby make their black too fat and glossy.

We would not advocate mixing black in varnish, because that would injure its working qualities and make it very difficult to apply with the ordinary camel's-hair blender; but a little rubbing varnish might be added to the color when mixed in brown japan, to add to its binding quality and give it the necessary egg-shell gloss. However, a little good linseed oil, in place of the varnish, would answer these same conditions, and give more vitality to the color; and we would therefore greatly prefer to omit varnish altogether.

L.

HOW TO MIX AND APPLY ROUGHSTUFF.

QUINCY, ILL., Feb. 7, 1885.

EDITOR OF THE HUB—DEAR SIR: Will you please inform me as to the best method of mixing roughstuff, and applying it.

I am a practical painter, and profess to understand my business, but there are many points connected with this subject which I am not sure about; and I find, by conversation with others, that wide differences of opinion exist.

A detailed reply will much oblige an old friend of *The Hub*.

Yours truly,

T. D. S.

ANSWER.—There are many good makes of dry roughstuff. Choose the best you know of.

There are also many theories and practices as to mixing it. The most noteworthy of these we briefly enumerate below.

A. prefers to mix it in clear japan gold-size, possibly because he is in the habit of doing hurried work. He tells us with great assurance that he has "never known it to crack." This we are a little inclined to question. If the japan gold-size is of the best possible grade, it ought to stand well; but we shall have a safer method to suggest later on.

B. uses equal parts of rubbing varnish and brown japan, with the addition of a little oil. He *knows* "this won't crack!" This statement we decidedly doubt, for the materials are too quick-drying in their nature, and the oil is the only saving ingredient. Why use so much japan, and then counteract it with the oil? It is better to reduce the proportion of brown japan, and still better to omit it altogether.

C. uses rubbing varnish together with a little oil, and this does fairly well if due care is taken as to the quality and quantity of the oil, and also to the length of time given between the coats, so that each may dry thoroughly. But C.'s method will be found dangerous if speed is a requisite and the work is hurried through the shop, for sinking of the finishing coat is then almost sure to follow.

The plan that we now recommend is not a new one, but it has been found to give the best possible results. It is as follows: Take any of the high-grade dry roughstuffs, three parts; and with this mix one part of keg-lead. Mix the roughstuff to a stiff paste with rubbing varnish, for medium work; or, if a slow roughstuff is desired, then use a finishing varnish,—for instance, the drainings of cans, which will naturally be a little heavy and "fatty." Thin this down to working consistency with turpentine. The lead should be prepared in a separate vessel, and be mixed thin with rubbing varnish. Add the lead to the roughstuff before thinning down with the turpentine, when it will readily assimilate with the other. Add no dryer of any kind, as the minerals themselves—the roughstuff and the lead—are sufficient dryers in themselves.

There are also many methods in use for applying roughstuff.

A. believes that thin coats of roughstuff, and many of them, produce the best results; and much may be said in favor of his theory. A thin coat will harden quicker and more thoroughly, and the final result will be satisfactory. This method, however, requires a good deal of additional time and labor, in order to produce the surface required.

B. applies heavy coats, and thus saves several coats, and a good deal of time and labor. We have known first-class painters who steadily adhered to this method; and it unquestionably gives satisfactory results where sufficient time is allowed between coats so that each shall become perfectly hard. But if the work is hurried, it is then dangerous, as cracking of intermediate coats or sinking of the varnish is sure to follow.

We prefer coats of moderate thickness. For instance, where A. uses six coats and B. uses three, we prefer four. These four coats should be brushed on as smooth as possible, as brush-marks in the roughstuff coatings are sure to become apparent after the first coats of varnish are applied, even though they have been previously rubbed out of sight with lump pumice-stone.

L.

QUESTIONS ABOUT WHITE-LEAD.

922 Wayne-st., DAYTON, O., Feb. 18, 1885.

EDITOR OF THE HUB—DEAR SIR: Is pure white-lead ground in pure linseed oil good for carriage painting? We bought 50 lbs. of a company here in the city, and claim to give satisfaction, but I mistrust it. Please let us know.

Yours truly,

G. COOK.

ANSWER.—Pure white-lead, ground in pure raw linseed-oil, is the foundation of the old standard method of carriage painting. As a priming, it no doubt served our forefathers well; and some modern painters, the quality of whose work is beyond criticism, still employ the lead system in preference to any of the modern and more healthful and economical methods.

L.

AMBIGUITY IN A FERRYBOAT.—Posted high in the ladies' cabins of the Hoboken ferryboats is this somewhat ambiguous notice: "These seats are exclusively for ladies. Gentlemen will not occupy them until the ladies are seated."

QUESTIONS ABOUT BLACKS AND BLACK VARNISH.

—, PA., Feb. 18, 1885.

EDITOR OF THE HUB—DEAR SIR: There is a dispute between the firm I work for and myself in regard to rubbing varnish, and I will be under many obligations to you for your decision.

1st. Which is the best method of producing a smooth and durable black job, —by clear rubbing varnish, or by black rubbing varnish?

2d. If you put black color in clear rubbing varnish, does it have any effect on the varnish; and if so, what is the effect?

We only use two coats of rubbing varnish, as ours is country work, but a job is expected to run two or three years before it is re-painted.

3d. The firm had been priming with Valentine's P. W. F., but of late have been priming with lead. Please tell me the best of the two. The firm like lead, and I prefer P. W. F. The firm like black rubbing varnish, and I prefer clear rubbing varnish. The firm have asked me to write to you for your opinion on these questions.

Yours truly,

B. (Foreman.)

ANSWER.—1st. To produce a first-class durable job in black, we prefer to use three coats of clear rubbing varnish. The painter, however, must be sure to have his color-coats perfectly solid. If there is any doubt about this being the case, it is then safer to let the first rubbing coat be black color-and-varnish; and to follow with one or two coats of clear rubbing varnish.

2d. Ivory or drop-black added to rubbing varnish, naturally changes the color of the varnish, and unquestionably helps it to retain this color. A little of such pigment may often be added to the second rubbing-coat with advantage.

3d. As to the comparative merits of the white-lead and P. W. F. systems of carriage-painting, this subject has been so exhaustively treated of in previous volumes of *The Hub* and the other trade journals, that it seems hardly necessary for us to enter into details here. Suffice it to say that the writer hereof, as a practical carriage-painter of many years' experience, after having employed both methods until he is fully conversant with the benefits and defects of both, has, in the light of such experience, become convinced that, for his own use, his preference is decidedly on the side of the P. W. F. system, as being simpler, more economical in time and labor, more healthful for the workmen, and capable of producing more durable work, providing it is understood and properly applied, as it entirely avoids flaking, scaling, and other devilities which were common—and, we think, inevitable—under the lead system of painting.

L.

COLORS, LARGE AND SMALL.

THE following article, by the so-called "*Times* Funny Man," illustrates in a marked manner how, by the clever use of sophistry, a grain of truth can be expanded to extraordinary and absurd conclusions. We feel confident that it will not only amuse our readers, but serve to impress upon their minds the grain of novel truth alluded to.

* * *

The discovery recently made by Prof. Huxley that size is an attribute of color, or, in other words, that certain colors are larger than other colors, is one of the most remarkable discoveries of modern times. We have long been accustomed to speak of cold and warm, and loud and quiet colors, but these terms have been used figuratively. That colors are actually large or small is a literal fact, and on reading the account of Prof. Huxley's experiments it seems strange that the discovery was not made long ago.

The Professor's attention was called to the matter quite accidentally through the medium of stockings. He had bought six pairs of stockings of the size known as No. 10. Three of them were red and three blue. On trying them on, he found that the blue stockings were too small and the red rather too large. As they were all No. 10 stockings it was evident that the difference in size between the red and the blue pairs was due to their respective color.

Pursuing his investigations in connection with stockings, Prof. Huxley found that white stockings are larger than either red or yellow, that black stockings are smaller than blue ones, and that, in short, there is a regular scale of size in colors, reaching from black up to white. Having thus established the fact that color affects the size of stockings, he extended his investigation to other fields and confirmed the result of his stocking experiments.

Prof. Huxley finds that white is the largest of all colors. White letters on a black ground can be seen much further than black letters on a white ground, thus proving that the former are larger than the latter. A woman in a white dress is larger than she would be in blue, and very much larger than she would be in black. Women long ago intuitively grasped the fact that black is the proper wear for a fat woman. Dress-makers have been accustomed to say that a black silk dress makes a stout woman appear reasonably small, but we now know that it actually and literally reduces her size. A series of experiments made with a stout woman demonstrated that she weighed forty pounds less when

dressed in black than she weighed when dressed in white. Prof. Huxley concedes that there may have been some slight error in this experiment, since the operation of changing the dress was not personally conducted by him. Still, he believes that the error, if any, was a small one, and that it did not materially affect the result.

Nearly every one has met in the summer time a fat German dressed entirely in white; but a thin white-clad German is something entirely unknown. Of course it is the white dress which makes the German fat. Dress the same man in black clothes, and he would be a man of ordinary size. The majestic appearance of the—that is to say, the size of—in short, the ballet girl invariably wears white or very light-colored tights, because white is the largest of all colors. Brown and pink may occasionally be used, but it is the opinion of Prof. Huxley that in nearly all cases the attractiveness of the ballet is due to the imposing size of white.

Next to white, yellow is the largest of all colors. The New-York Cab Company has been fortunate in painting the lower part of its cabs yellow, since by this means they are much more roomy than they would be had they been painted black. So, too, the gilt and yellow paint used on board our river steamers sensibly increases their tonnage. Most railway cars are painted red, and Prof. Huxley estimates that a red car which holds sixty passengers would not hold more than fifty were it painted blue. The world has long known that the red-coated British soldier is a larger and braver man than the blue-coated Frenchman, but it has never hitherto occurred to any one that this difference in size was due to the difference in colors. The Austrian soldiers, when clad in their traditional white coats, weighed, on an average, 160 pounds each, but the substitution of gray coats has reduced the weight of the Austrian infantryman to 150 pounds. The young gentlemen who hunt the aniseed bag in Long Island are, as a rule, slight and graceful in figure when dressed in black, but when they put on their red and white uniform they present a really imposing appearance.

Prof. Huxley points out that the common practice of painting steamships black seriously affects their carrying capacity. He calculates that the tonnage of the *Brittanic*, for example, which is now only 5,500 tons, could be increased to 6,137 tons by painting her white, and that the momentum of a black ironclad ram would be increased one-ninth were she to be given a coat of white paint. He claims that the superiority in stature of the white over the yellow man, and the latter over the black man, is purely the result of colors, and asserts that were Englishmen to paint themselves a dead white from head to foot, and to wear white clothes, they would make an average gain of three inches in height and of twelve pounds in weight.

It is evident that this new discovery will have the most important consequences. Time and space would fail to allude, even in the most cursory manner, to the various ways in which it will affect the commerce, manufactures, and daily life of nations; but it can hardly be doubted that white and red, owing to their great superiority in size, will, in the near future, become of almost universal use, and that black and blue will be used only when the size of objects is sought to be decreased.



WHAT CONDITIONS CAUSE ROOF-PIECES TO GET LOOSE?

SEVERAL articles on the above subject have recently appeared in the trade papers, but in none of them do I find mentioned the cause to which I attribute this common defect.

Young trimmers are troubled in this respect. I will speak first of tops that leave the trimming-room quite smooth, but which, after standing in the wareroom a short time, become loose and sag down between the bows. The cause of this in many cases appears to be due to the head-linings and other trimming materials, which are drawn over the bows, and especially where the head-linings are put in without first being sponged. When such tops reach the wareroom, which is generally cold and damp, the cloth naturally shrinks somewhat, as well as the material which holds the stuffing on the top; and this action springs the front and back bows, thereby causing the fullness in the roof-pieces and the sagging down of the same between the bows.

Roof-pieces not drawn on smooth when the top is drawn on, is a common fault in fitting tops; also too large a quantity of loose stuffing over

the bows, and also drawing and puckering up at the seams, effected while joining the top together; and all the above-named defects are liable to cause the trouble now under consideration.

Drawing too tight, and consequent straining, is a common source of trouble, not only by allowing the roof-pieces to become loose, but by causing the side-cones to loosen, and springing the bows, which so often disfigures the appearance of tops. In the latter case, too much draw often has to be given to the top-braces in order to hold the top in place.

We have seen trimmers draw in the head-lining without fitting it, and then draw six strips of webbing over the bows by the aid of pinchers. We have observed that such trimmers are most always troubled by some part of the trimming coming loose, or by the back bows drawing together where no concealed top-joint was used.

In conclusion, we will counsel those troubled in this way to fit the head-lining to the bows by cutting it, and then draw in smooth but not tight. Then draw two strips of enameled duck over the bows, about three inches wide. Do not stretch the strips on tight, but just draw them out smooth and draw on the muslin with the same care. Use just enough hair to prevent the bows from showing through, and do not lay the stuffing up any higher than where the bend begins on the bows. Crimp the top quarters well before drawing them on, so as not to spring the bows. Where the top is trimmed before the length of the joint is taken, give the long joint $\frac{3}{8}$ inch draw, and the short or front joint $\frac{1}{4}$ inch.

By observing the above conditions, you will find that your trimming will finish up smooth, and the bows will not be curved or sprung.

C. G. Cook.

DESIGN APPLICABLE TO THE TRIMMING OF HEAVY CARRIAGES.

(See three Illustrations accompanying.)

ANOTHER PLAIN RECTANGULAR PATTERN.

THE pattern here presented is intended as a mate to the one illustrated and described in the last number, pages 764 and 765. Fig. 1 shows the quarter; Fig. 2, the back; and Fig. 3, the door.

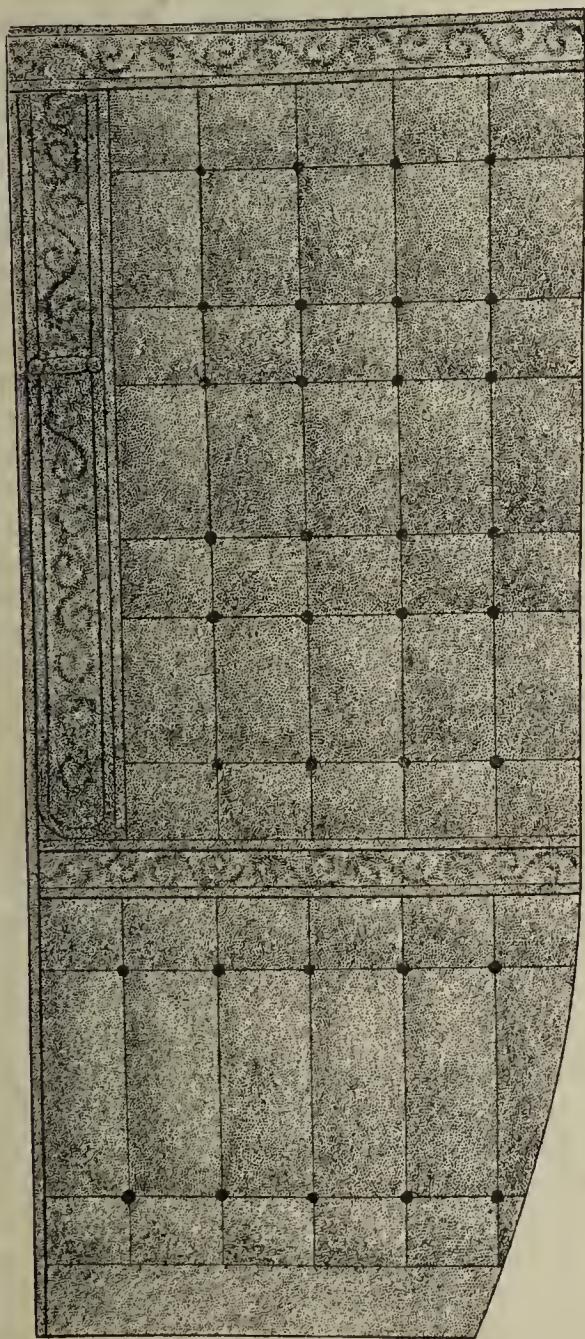


FIG. 1.

This design somewhat resembles the preceding, but the upper side quarter has alternate small squares and long rectangles.

Our house recently exhibited at our State Fair a carriage trimmed in this manner; and we are using all three of the designs included in this series, in our own trimming-room.

This design can be made up in a similar manner to that recommended for the pattern illustrated on pages 701 and 702.

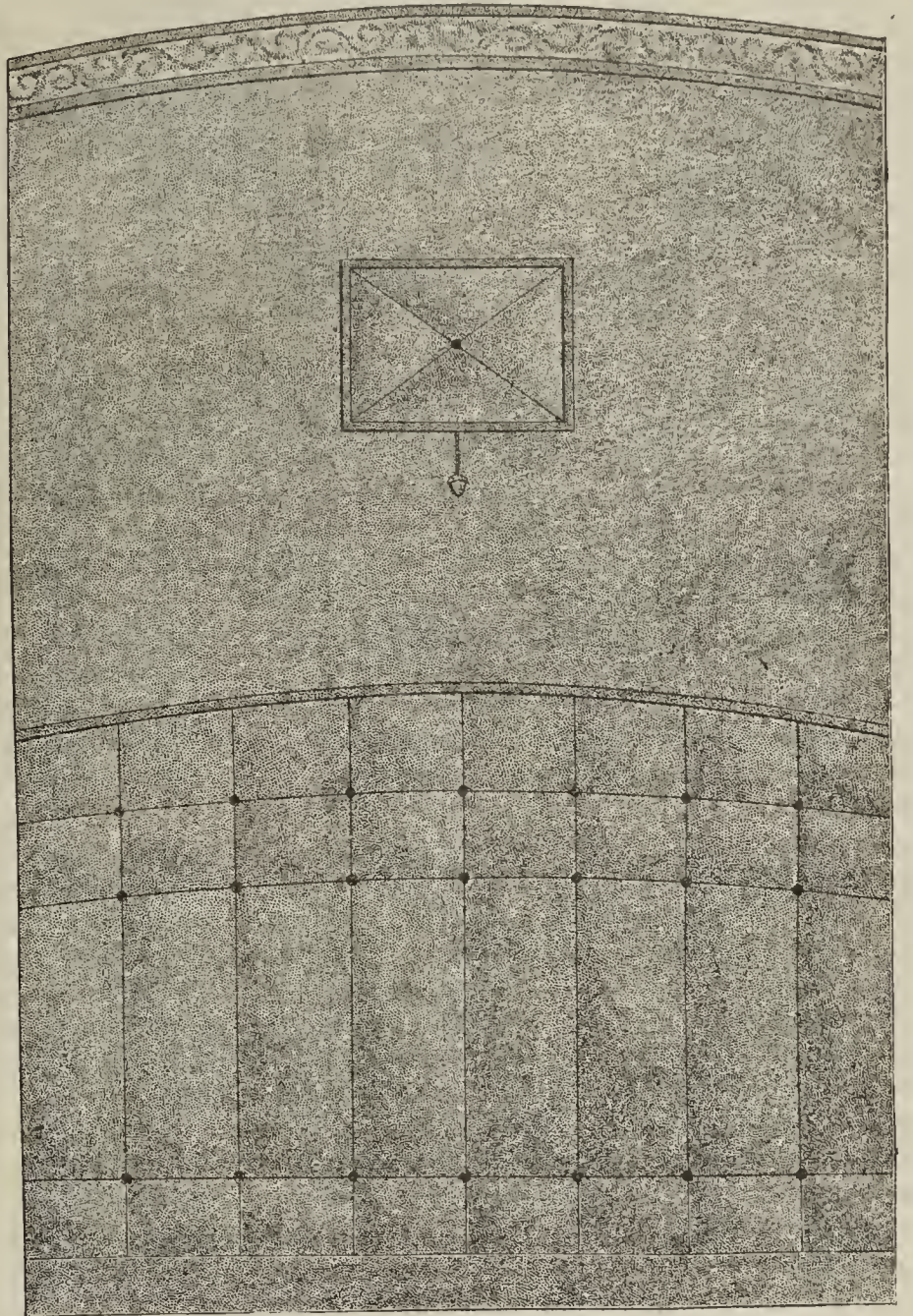


FIG. 2.

The pattern of the cushion top, which is here omitted, is made to correspond with the figures introduced on the other parts of the trimming. The front of the cushion is finished with broad-lace, as on the two preceding designs. The material is green goatskin for the back and cushion top, and the rest is made of either cloth or satin. Carpet, green, with small figure, and tufts to match.

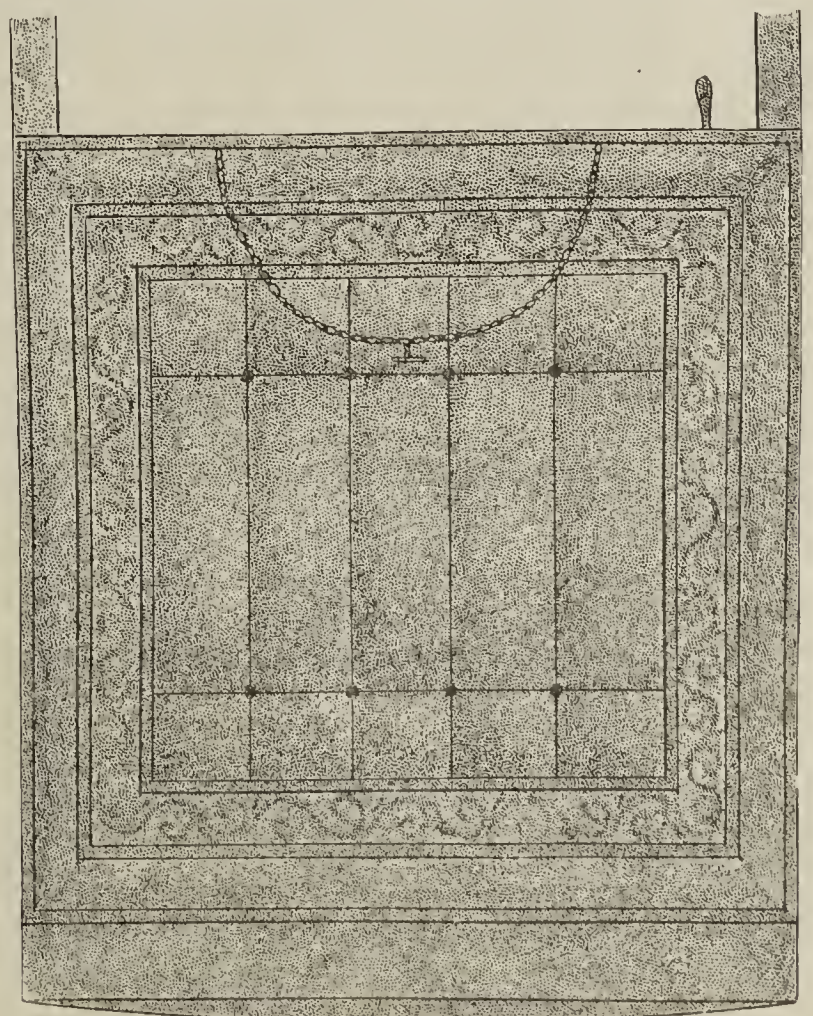


FIG. 3.

This is the time for trimming heavy work, and we hope, after examining and comparing the series of three designs for such work, of which this is the closing one, that you may find one after your choice. W. H. E.

HINTS ON THE USE OF SATIN IN COACH TRIMMING.

THE trimming of a heavy carriage body of any description is a difficult and complicated undertaking. Every shop has its specialties in the minor arrangements of such bodies, which demand different methods of working on the part of the trimmers; and workmen employed for a long period in one shop, becoming familiar with the individual taste of the employer and the demands of customers, therefore possess a decided advantage over new hands who are unacquainted with the methods employed in the shop just entered, and who therefore work under great disadvantage. To judge of the work of a new hand by his first specimen is consequently unfair.

Carriage bodies as a rule are not constructed to suit the trimming, but the latter must be made to conform to the interior shape of the body. One point often producing great difficulties for the trimmer, is the make-up of the cushions when the seat-boards are below the top of the rocker. The proper selection of materials is also an important matter. Each kind of material has its peculiarities, and requires somewhat different treatment in its make-up.

The selection of the materials depends partly on the individual taste of the customer, and partly on the demands of fashion; and the trimmer is required to apply the materials in such form or design as is thus demanded by individual taste and fashion. Another important consideration in the selection and make-up of the goods, is the use to which the vehicle is to be applied, whether for private or livery purposes. In laying out a design, all the above-mentioned points must be taken into consideration, and a definite plan must be decided upon before commencing the work. A little calculation beforehand will prove beneficial at the end. Each part should be laid off so as to harmonize with the general design, or else the effect of the interior appearance will be injured, and alterations may be necessitated which will never prove so satisfactory as if done properly in the first place, while unpleasant relations between the employer and the employé may at the same time be caused.

An attractive combination of materials for heavy work—a coach, for instance—is satin and goatskin, in any shade or color. The entire upper portion of the body—or, to be more definite, all parts above the elbow pieces, and the top of the lower back, head-lining included—are made of satin. Combinations of cloth and satin are not often successful, as the subdued effect of the cloth is scarcely in harmony with the brilliancy of the satin. For elaborate display, striking combinations of color may be used,—for instance, drab cloth and green satin, or drab cloth and blue satin. Brown satin and green cloth have also been used on some occasions to gratify the tastes of customers.

Of all the trimming goods with which we are familiar, satin holds the lead for producing an elegant effect, its profuse tuftings, and adaptability to conform with tufted squabbing, being unsurpassed by any other goods, while a smoother squabbing with greater regularity of plaiting, can be produced from satin, and with less fullness of the material. The insertion of tufts in the squabbing displays the elegance of the goods by producing a variety of rich shades.

On the other hand, it should be borne in mind that satin is not well adapted for covering large plain surfaces, as the richness of the goods is not displayed to such advantage as if divided into smaller figures. Trimmers who have been required to apply a plain satin head-lining to a curved falling top, such as that of a Victoria or Brett, must have been reminded of this fact. Even with the exercise of the greatest care by a skilled workman, it will not under such conditions produce the desired effect, but will be pretty sure to cause disappointment, not only on the part of the workman, but the manufacturer, and perhaps the customer. The extreme delicacy of satin always requires special care in handling the work, and it cannot be manipulated like any other goods used in carriage trimming.

It should also be borne in mind that any material which requires to be pasted on a surface will show every imperfection of the wood or other groundwork. Even ravelings of the material on the surface will then become plainly visible, the effect being similar to that of applying a coat of varnish over a bruised surface.

For finishing and decoration, laces of suitable designs, tassels, and covered or ebony fixtures may be used with more or less profusion, according to the character of the work and the taste of the builder or customer. Laces containing a combination of the colors used in painting and striping the body and gear are usually selected, and are decidedly to be preferred.

The head-linings of heavy jobs are very often tufted. The tufts or covered buttons, whichever they may be, are a trifle smaller than those used for the other parts of the body. As many of our readers may not be familiar with the mode of fastening the head-lining, we will now explain it in detail, and at the same time describe the treatment of the different goods.

Before applying a plain head-lining of satin, all points of nails, slivers

of wood, and lumps of glue or canvas adhering to the curves, must be carefully removed, and particular attention must be paid to the curves to which the head-lining is fastened. When the head is tufted, these precautions are not so vital, as some stuffing is then placed between the curves and the satin. The method of making up the head-lining is the same as for any other squabbed work. A pattern is first made, the exact size of the roof, and the design of the tufting is marked on this. An allowance of $\frac{1}{8}$ inch fullness is made on the satin between the tufts. As this margin is small, the pattern must be quite accurate. A sharp-pointed compass and a large smooth table or bench will be helpful to the workman at this stage of the work. In punching the holes for the tufts, a blunt awl should be avoided, and, in preference, use a sharp $\frac{1}{8}$ -inch chisel. [A broken gimlet bit, sharpened like a chisel, well answers the purpose.] Such a chisel will make a clean smooth cut on the cotton or linen threads on the underside of the goods.

With a fairly hot iron, the diagonal marks of the design should be well pressed, and a smooth board is necessary for this purpose. A tufting frame, of the required dimensions, may be covered with heavy muslin or burlaps, and upon this the pattern and position of the tufts are marked. A light layer of well-picked hair [it is not necessary to use the best quality] is laid evenly upon this frame, the quantity being determined by the judgment of the workman, and governed by the amount of fullness. Over this hair, a thickness of white sheet-cotton or batting is laid, after which the tufts are drawn. Tie each tuft separately; and, in guiding the tufting needle, be particularly careful to avoid catching hold of any of the satin material, but guide it free and clear through a clean cut opening made by the chisel. By catching hold of any of the goods, a defect is liable to appear across the full width of the roof. Colored cottons are to be avoided, owing to their liability of staining the goods by getting wet in places where exposed. All superfluous hair or cotton should be well drawn away from the lines of sewing. Draw this out thin, and gather in the fullness caused by the sewing. The strips whereby the head-lining is screwed to the bows, can be tacked on, and it should be remembered that greater weight is here present than in plain linings.

The selection of the curves for fastening the head-linings depends mainly on their situation. One place should be at the center bow, and the other two places as nearly as possible midway between the front or rear curve, to preserve the arch of the roof.

A tufted or plain head-lining will appear best when it follows the sweep of the roof. As the head-room is scant on some jobs, it is of great importance in such cases to have the head-linings lie quite smooth on all the curves. On tufted head-linings it sometimes becomes necessary, by reason of the lack of sufficient head-room, to reduce somewhat the height of the cushions. In tacking the head-lining to the body, it is necessary to draw it tight and square, without diagonal strain, as this would be visible in the tufting.

In the case of a plain satin head-lining, if, when tacking it on to the sides of the roof, it is treated the same as a head-lining made of other materials, the sides will present a streak at each tack across the full width of the roof, thus greatly marring the rich effect otherwise produced; and the same is also true of a tufted head-lining, although in a less degree. The streaks are caused by the heads of the tacks coming in contact with the satin, and pinching the large cotton or linen threads on the underside of the head-linings. To remedy this evil, some substance is required between the tack-heads and the satin. Strips of oil-cloth will best answer this purpose. The strips are secured to the head-lining by driving tacks through both the strips and the head-lining. Such strips not only prevent the satin from wrinkling, but also leave a clear track for the finishing lace around the roof-rail. TRIMMER.

EMBOSSSED LEATHER AS A SUBSTITUTE FOR COACH LACE.

OUR new Vienna contemporary, *Sport Industrie*, highly recommends an application of embossed or stamped leather as a substitute for broad-lace in the interior decoration of carriages, and its description of the characteristics and advantages of the new invention well merit attention.

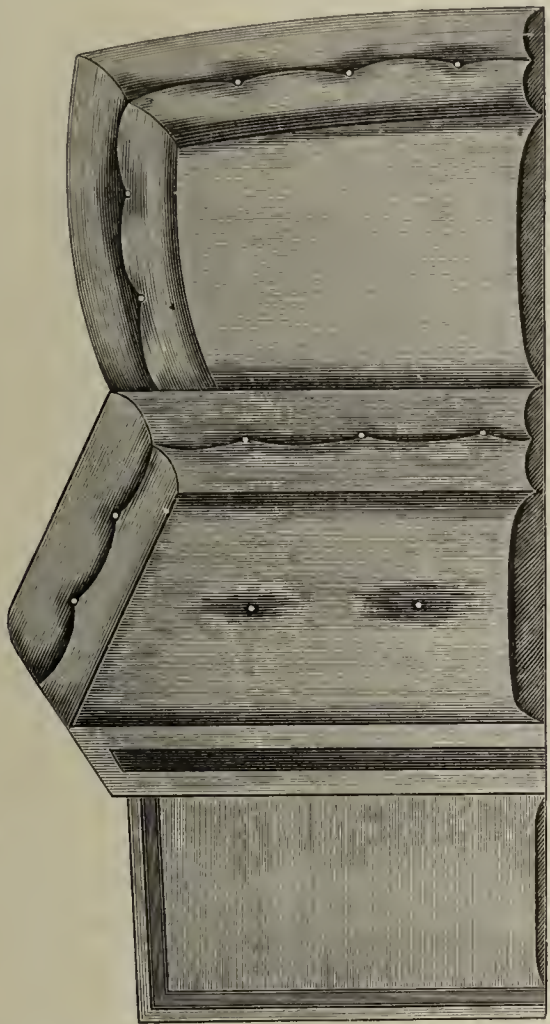
It appears that it is made of chagriné leather, pressed into designs similar to those used on ordinary broad-lace, and that it fulfills all the requirements of a fashionable interior decoration for carriages, being pleasing in appearance, and having the special advantage that it matches better with leather trimmings in texture and color than broad-lace made of wool or silk. It can also be more easily cleaned and kept free from dust than woolen and silk laces; and the wearing quality is at least equal to that of woolen or silk laces.

Mr. P. W. Bieger, leather manufacturer, of No. 17 Ferdinand-street, Vienna, Austria, is prepared to supply this novelty to the carriage trade, and we hope before long to have an opportunity to see some in this country. We have made application for samples.

DESIGN FOR TRIMMING A STICK-SEAT BUGGY.

I HEREWITH present a design of buggy trimming well adapted for stick-seat work, which deserves attention on the part of those who are always looking for something new.

This back has a split or tufted roll, three inches wide, across the top and ends, while the center is made up plain. We show the back with four tufts drawn in, and this should be done very lightly, as sinking them too deep would wrinkle the cloth.



To make up this back, proceed as follows: Stretch white muslin on a frame, and then lay off on this muslin the shape of the back inside of the roll. Next apply paste to the muslin, and lay on enough well-picked hair to give the back the required thickness. Cover the hair with muslin, and sew down around the edges. Work the hair well up around the edges, and, with a long stitch, quilt the hair to the muslin to prevent it from slipping down, and to better keep the back in shape.

Next lay on a sheet of cotton, and draw this over the cloth, and sew down around the edges. Then cut out of the frame, and paste to a buckram foundation, and baste down around the edges.

The roll has three inches fullness, with sufficient left across the top to finish on the lazy-back. A round welt divides the roll from the back. Draw the roll tight between the tufts, and draw in the buttons before stuffing the roll. Line the roll with muslin and cotton, and stuff up with a stuffing-stick. Finish the lazy-back with a round and flat welt, with the round welt in front.

The cushion is made with high side and back facings, and is therefore particularly adapted for stick seats. The front facing is $2\frac{1}{4}$ inches wide. Mark the height of the front facing on the end and back facings, and to this mark the cushion top is sewed. The cushion top is made upon a frame, the same as the back. Sew together the cloth of the end and back facings separately at the back corners, and then join together the facing stiffening, as the cloth must be turned down to sew in the top. Paste the cloth to the facings below the mark where the cushion top is sewed. Then sew in the bottom all around, but the top in the front only, before turning the cushion. Turn down the cloth on the end and back facing, and finish sewing in the top. Stuff up the bottom of the cushion from the top. Then put on the roll on the end and back facing, and finish up the same as the back.

A more detailed description of a similar cushion will be found in the November *Hub*, 1877, page 353.

The fall is sewed to the cushion, and is made up in the usual way.

C. G. COOK.

RECEIPT FOR MUCILAGE.

A GOOD mucilage made be made by heating a pound of dextrine with a quart of water over a water-bath (or in any double-bottomed culinary vessel) until the dextrine is dissolved. Add one ounce of acetic acid, and a little oil of clove, or carbolic acid. This makes a transparent and adhesive paste or mucilage, which will keep indefinitely. For some purposes it may be well to use a little more dextrine, say 18 or even 20 ounces to the quart of water.—*Popular Science News*.



TRADE GOSSIP OF THE PAST MONTH.

THE decision of the General Term of the Court of Common Pleas, on the appeal in the case of Brewster *vs.* Hatch, has not yet been handed down. We hope to be able to make it public in our next number.

* * *

THE tandem turnout by Mr. Gray-Parker, illustrated in our last number under the title of "Ready for the Road," has been much complimented by our correspondents as being in particularly good form throughout all its details. Some of our readers may be interested to learn that it is an accurate portrait of the Dog-cart and team used last summer at Long Branch by Mr. Berry Wall, of New-York City.

* * *

FRIDAY evening, February 6th, was a red-letter night at the Technical School for Carriage Draftsmen and Mechanics, in this city, when Mr. H. G. Shepard, of New-Haven, delivered his illustrated lecture on "The Selection, Care and Use of Carriage Timber." About one hundred persons were present, including many leading carriage woodworkers; and the questions and answers which accompanied and followed the lecture proper, were almost as interesting and instructive as the lecture itself. *The Hub* was represented by two stenographers, who have prepared a full and accurate report of all the proceedings, which will be published in detail, accompanied by illustrations, in our coming volume, beginning with the next number.

* * *

A CRAYON portrait of the late William D. Rogers, of Philadelphia, framed with crape, has been hung upon the wall of the Technical School for Carriage Draftsmen and Mechanics, in this city; and it attracted much attention on the occasion of the recent Shepard lecture. It was executed by Mr. John C. Konrad, one of the instructors of the School, being reproduced by him in life-size from the engraving which appeared in our last month's number; and it is pronounced by those who know Mr. Rogers as a very faithful portrait. Mr. Rogers was an active member of the Committee of the Carriage Builders' National Association from its first appointment in Chicago, in 1880, up to the time of his death, and the loss of his friendly counsel and aid will be felt in many ways by his fellow-members of the School Committee, whose working efficiency has been further impaired by the continued illness of its chairman, Mr. John W. Britton.

* * *

ON the evening of Jan. 28th (more accurately, the morning of the 29th) we had the pleasure of attending the seventeenth annual ball of the Coachmen's Union Benevolent Association (let us call them the "Cubas," for short), held at Tammany Hall in this city. The object of this Association is what its title indicates: *benevolence*. From the ample treasury which it now has at its disposal, it pays \$10 a week to members while ill or otherwise disabled; and \$150 upon the death of a member, or half that sum upon the death of a member's wife. Three other similar societies are now in existence in this city, including one recently organized by the colored coachmen; but the "Cuba" holds the lead in point of membership and popularity, and this seems only natural after meeting its executive officers: Messrs. Toole, Doughty, Coyle, Higgins, Mead and Havey, who have *The Hub's* best wishes for the successful continuance of their benevolent work. The New-York carriage and harness-makers were represented in full force at the ball referred to, and added materially to the sociability of the occasion.

* * *

A PERIODICAL topic for scandal is afforded by the reports of the use by Government officers, for family and social purposes, of carriages and horses provided at Government expense for official business. In recent publications it is charged that almost every

Fire Losses in Carriage, Wagon and Sleigh Shops
IN THE UNITED STATES,
DURING THE YEAR 1884.

NAMES OF PROPRIETORS.	BUSINESS.	LOCATION.	DATE OF FIRE.	PROBABLE CAUSE OF FIRE.	TOTAL LOSS.	AMOUNT OF INSURANCE	AV' RAGE RATE OF INSUR' CE.
Acker, H. E., Jr.	Carriage Paint-shop	Perth Amboy, N. J.	Sept. 15	Explosion of Lamp	\$1,600	\$750	...%
Allen, R. T.	Carriages	Wallingford, Conn.					
Anderson, John	Carriages	Jackson, Mich.					
Babcock, L. W.	Wagons	[Whites town (Utica), N. Y.	Oct. 30		5,000		
Barnard, Hiram C.	Carriages and Sleighs	N. Chesterville, Me.		Incendiary	1,000	None.	
Bean, Daniel C.	Carriages	Milan, N. H.				None.	
Bellefontaine Carriage Body Co.	Carriage and Buggy Bodies	Bellefontaine, O.	Sept. 19	Incendiary	8,000	None.	
Blackmer, Z. H.	Carriages	Petersham, Mass.	March 28	Incendiary	3,000	800	
Bodley Bros	Plantation Wagons	Wheeling, W. Va.	Jan. 6	Matches and Mice	15,000	28,000	
Born, E. B.	Carriages	Allegan, Mich.	March 12	General Fire	8,500	3,630	2, 2 1/2
Bowen, W. W.	Carriages	[Church Hill, Kent Co., Md.	April 6	Unknown	15,000		
Burgess, A. O.	Carriage Paint-shop	Houlton, Me.	Dec. 14	From Adjoining Building	1,500	600	3 1/2
Capital City Mfg. Co.	Wagons	Lansing Mich.			3,500	1,000	
Cleaves, C. B.	Carriages	Lubec, Me.					
Clouse, Joseph	Carriages	Marion, Ind.	Aug. 17	Unknown	2,350	1,600	2
Cole, Edw. C.	Carriages	New-Haven, Conn.					
Codey & Son, S. M.	Carriages	Pittsfield, Mass.	Oct. 18	From Adjoining Building	350	1,000	
Cruttenden, Edw.	Wagons	Gillespie, Ill.					
Driscoll & Forsythe	Wagons	Minneapolis, Minn.			1,600		
Edwards, J. B.	Carriages	Greenpoint, N. Y.					
Fitzgerald, Geo.	Carriages	Los Gatos, Cal.					
Fitzgibbons & Crisp	Carriages	Trenton, N. J.	Dec. 9		25,000	18,600	2
Gill, E. C.	Carriages	Columbia, Mo.					
Gladding Bros	Wagons	Wadsworth, Nev.					
Golden & Atzrerodt	Carriages	Harrisonburg, Va.					
Griffin, Michael	Wagons	Medina, N. Y.				1,500	
Harvey & Hilliard	Carriages and Wagons	Pensacola, Fla.	July 31	From Furnace	30,000	14,300	4 1/2
Heffly, John S.	Carriages	Berlin, Pa.					
Hertwick, Baltzer & Co.	Wagons	Hickman, Ky.		From Adjoining Building	15,000	13,800	3 1/2
Humphrey, Norwood & Belden	Carriages	Williamstown, Mass.					
Huntsman, Wm.	Carriages	Stroudsburgh, Pa.	July 25		9,000		
Huott, Felix	Wagons	Plymouth, Cal.					
Illinois Wagon Co.	Carriages and Wagons	Chicago, Ill.	Oct. 29				
Janson, B.	Carriages and Wagons	Effingham, Ill.	July 23	Unknown	10,000	None.	
Kestler, Martin	Wagons	Sacramento, Cal.			7,500	4,000	
Klein Bros	Wagons	Hoboken, N. J.	Jan. 15	From Boilers	4,600	4,100	
Knowles, A. E.	Carriages	N. Chesterville, Me.			300		
Koch, John	Carriage Trimming-shop	Columbiana, O.	May 6	From Adjoining Building	1,000	None.	
Lamb, John	Carriages	Mount Laurel, N. J.	Dec. 30	Unknown			
Loomis, Wm. A.	Wagons	Scio, N. Y.					
Marden, Geo. W.	Carriages	Amesbury, Mass.	Aug. 9	Sparks from Forge	1,300		
Marden, Geo. W.	Carriages	Amesbury, Mass.	Oct. 30				
McCamy, Bonte & Co.	Carriages	Hopkinsville, Ky.	Dec. 29	From Adjoining Building	650	6,000	2 1/2, 2 3/4
McClinton & Co.	Carriages and Wagons	Allegheny, Pa.	Aug. 13	From Forges	2,000	3,100	2
McKean & Campbell	Wagons	Portland Oregon			2,600	1,500	
Melburn, L. A.	Carriages	Denver, Col.			40,000	22,000	
Mitchell, Lewis & Co.	Wagons	Racine, Wis.	Feb. 28		15,000		
Mooney, Jas.	Wagons	E. Portland, Oregon			4,000	1,600	
Morgan & Perry	Carriages	[West New Brighton, S. I., N. Y.	July 19	Spontaneous Combustion	6,500	5,500	
Mosley, Edw.	Wagons	Stropiere, Wis.	Feb. 19				
Mullen, T. D.	Wagons	Herman Minn.			1,000		
Mullmeyer, Wm.	Carriages	Baltimore, Md.	Nov. 2				
O'Neil Wagon Co.	Carriages and Wagons	Cortland, N. Y.	Feb. 14	Thought to be Incendiary		17,000	
Owensboro Wagon Works	Wagons	Owensboro, Ky.	May 22		20,000	10,000	
Phelps, Edgar	Carriages	Walcott, N. Y.	Feb. 10		2,000	1,500	
Pope, Wm.	Wagons	St. Joseph, Mo.					
Rogers, Son & Co., Wm. D.	Carriage Repository	Philadelphia, Pa.	Sept. 20	Electric Wire	56,000	60,000	
Schneider & Co., A.	Carriages	Port Washington, O.				3,000	
Schumacher & Co., H.	Carriages	Mobile, Ala.	Jan. 25	Unknown	7,000	None.	
Sheldon, John	Wagons	Hampden, Mass.	Nov. 14		4,000	2,000	
Smart, Alex.	Carriages	Merrimac, Mass.	Nov. 6	Unknown	2,000	1,500	1 3/4
Smith, Albert	Wagons	Hohokus, N. J.			400	None.	
Smith, W. H.	Wagons and Sleighs	Lowville, N. Y.		From Adjoining Building	385	7,000	
Smith & Co., C. E.	Wagons and Harness	Allegan, Mich.	March 12	From Adjoining Building	1,800	800	
Smith & Moore	Carriages	Kokomo, Ind.	Nov. 24				
Smith & Stahl	Carriages	Richmond, Ky.					
Spencer & Co., J. L.	Carriages and Materials	Oneida, N. Y.	Feb. 11		37,000	35,000	1, 4
Spoilet, S. J.	Carriages	Brunswick, Me.	Dec. 21		2,000	300	
Springville Wagon Co.	Carriages and Wagons	Cortland, N. Y.	Feb. 14			34,000	
Summers & Murphey	Carriages	Barnesville, Ga.	Oct. 17		10,000	3,000	
Sylvester, C. A.	Carriages	Charles City, Iowa	July 24	Unknown	35,000	23,000	
Valliant, E. S.	Carriage Repos'y	[Church Hill, Kent Co., Md.	April 6	From Adjoining Building	12,000		
Wadleigh, J. B.	Carriages	Medina, N. Y.					
West, Charles	Carriages	Tenafly, N. J.	Sept. 14	Unknown		4,000	
Wetzel, Adam	Carriage Paint-shop	Cleveland, O.				None.	
Wetzel, Jacob	Wagons	Cleveland, O.			5,000		
Wheeler, George	Carriage Repair-shop	Milan, N. H.				None.	
Whitney Wagon Works	Carriages and Wagons	Syracuse, N. Y.	Jan. 4			19,000	
Williamson, D. T.	Carriage Repository	Bryan, Texas					

NOTE.—The above "Fire Table" was originally compiled from items which have appeared in our "Trade News Department" during the current volume of *The Hub*; and proofs were subsequently forwarded to all the houses named, from whose detailed reports many additional facts have been obtained and duly inserted. Further corrections and additions are requested. The lessons suggested by this showing will be pointed out in an editorial which will accompany the corrected list to appear in our next issue.

bureau officer secures a carriage under the pretence of an express wagon or mail wagon, together with a driver who appears on the rolls as a messenger or copyist. Comptroller Lawrence, through whose hands such accounts must pass, says that it is impossible to defraud the Government in the manner indicated. Carriages are only provided for Cabinet officers and chiefs of independent bureaus, while the vehicles of other descriptions are so few as barely to meet the actual necessities of the service, and their use for private purposes to any considerable extent could not continue unobserved, and would not be permitted. Reports that such practices as this, as well as the care of private stables, household work, etc., are performed at Government expense by employes of the Agricultural Bureau, are very emphatically denied.

* * *

DURING the past month we have been busily engaged in compiling a table showing fire losses by the carriage, wagon and sleigh-makers of the United States during the year 1884, a proof-sheet of which is presented on the opposite page. We shall be glad to receive from any reader, such corrections or additions as may be suggested while reading it, for we desire to have our facts as accurate and complete as possible before preparing for our next number a review of the lessons taught by this record.

* * *

WHILE preparing the accompanying Fire Table for 1884, we have been pleased to receive from a subscriber a collection of similar tables of statistics, though less detailed, published last year by the *Insurance Chronicle*, under the title of "Exhibit of Losses by Fires in the United States and Canada during the years 1875 to 1882, inclusive." From this source, we learn the following interesting facts as to the records of the past, by which fire insurance companies are likely to be influenced in determining rates. It seems that during the eight years above-named, the carriage and accessory trades of this country and Canada are credited (or debited) with the following state of things.

* * *

HERE is the record as regards the United States :

	Number in Existence by Census of 1880.	Number Burned in Seven Years 1875-1881.	Number Burned in 1882.	Total Burned in Eight Years.	Per Cent. Burned Annually.
Blacksmith-shops.....	28,101	545	81	626	.0028
Carriage and Wagon Factor- ies and Wheelwright-shops }	14,610	529	94	623	.0053
Carriage and Wagon Materials	412	57	18	75	.0227

AND here follows a similar record relating to Canada :

	Number in Existence by Census of 1870.	Number Burned in Seven Years 1875-1881.	Number Burned in 1882.	Total Burned in Eight Years.	Per Cent. Burned Annually.
Blacksmith-shops.....	6,275	121	17	138	.0027
Carriage and Wagon Factor- ies and Wheelwright-shops }	2,636	133	17	150	.0071
Carriage and Wagon Materials	...	8	1	9	...

We shall await with interest the receipt of further statistics by the same authority, that we may compare them with *The Hub's* detailed tables for 1883 and 1884.

* * *

WE publish in this number nearly the full text of the opinion of the Supreme Court of the United States, recently delivered by Mr. Justice Blatchford, in a now famous customs case relating to the importation of carriages, popularly known as the "Julia Morgan Carriage Case." But inasmuch as some of our readers may have neither the time nor patience for a perusal of the whole opinion, we will endeavor to give below a brief and clear summary of the law as laid down therein.

* * *

THE facts proved were, that Julia Morgan was a native citizen of the United States, had lived abroad as a temporary resident for three years, during which time she had purchased a carriage in France, which she had used as a family carriage for more than one year prior to its importation; that she had returned to this country about two weeks prior to its importation, and that it was imported by her for her own use and was not intended for any other person or for sale. She protested against paying the imposed duty of 35 per cent., on the ground that the carriage was "personal effects," used by her "over a year," and that under § 2505 U. S. Revised Statutes, "personal effects in actual use" were free of duty.

Decisions of the Collector and of the Secretary of the Treasury being against her, she brought suit, and recovered judgment for the amount of duty paid by her in the Circuit Court, whence the Collector appealed to the Supreme Court. The Court having held that the claim "personal effects" was broad enough to cover "household effects," the whole question turned on the construction of the words "household effects" in Clause 1 of § 2505 of the Revised Statutes of 1874, which provided that the following articles should be exempt from duty: 1. Books, household effects, or libraries or parts of libraries, in use, of persons or families from foreign countries, if used abroad by them not less than one year, and not intended for any other person or persons, nor for sale. Judge Blatchford said: "In the provision respecting the 'household effects' of persons or families, there is an evident intention to include articles which pertain to a person as a householder or to a family as a household, which have been used abroad not less than a year, and are not intended for others nor for sale. A carriage is peculiarly a family or household article. It contributes, in a large degree, to the health, convenience, comfort and welfare of the householder or of the family. The statute is not limited to articles of household furniture, or to things whose place is necessarily within the four walls of a house." On the above grounds, it was held that the carriage should be admitted free of duty.

* * *

IN reply to repeated inquiries from correspondents, we would state that Congress has no power in any way to overrule or set aside this decision of the Supreme Court, and that the only course left to carriage-makers, if dissatisfied with the law thus interpreted, is to induce Congress to alter the same by adding the words "excepting carriages" after the words "household effects" in the same section. However, the law as it stands, unless fraud were practiced in the affidavits, would seem to work little hardship to the carriage trade of this country, inasmuch as the importer is obliged to swear that the carriage is a household effect of his, in actual use, and that it has been in use by him abroad not less than a year, and is not intended for any other person or persons, nor for sale. Comparatively few applicants could truthfully comply with these requirements. The question has also been asked us: "Why could not harnesses or pictures come in free of duty under this head?" The answer is, that they unquestionably could and would in all cases where the importer could satisfy the above requirements in his affidavit; and we are informed that there is no doubt but that, under this decision, they will hereafter be allowed so to do.

* * *

OFFICIAL reports of the work of the United States Patent Office measurably denote the progress of American endeavor, for our superiority in many branches of industry is unquestionably largely due to the triumphs of American inventors; and our patent laws, with all their defects, certainly aid to stimulate invention to a high degree, and thus promote the industrial progress of the country. It appears that, during last year, 20,297 new patents were issued, and 116 old ones re-issued; and, of these, 19,013 were to citizens of the United States. On the other hand, 12,301 patents expired during the same year, of which, doubtless, a very large proportion have proved of little or no practical utility. It also appears that the Patent Office, with all its benefits to the public, is not a burden to the country financially. From fees last year its revenue exceeded its expenditures by \$105,219.

* * *

AN extraordinary cause for gossip came to light last month, under the following circumstances, some of which are no doubt already familiar to our readers: Mr. Robert A. Wallace, of Buffalo, N. Y., formerly a member of the carriage manufacturing firm of Harvey & Wallace, died about eight years ago; when, although he had repeatedly told his children and friends that he had provided for his four children by a former wife, no will could be discovered. After futile efforts to find the will, the estate was settled according to law, and each of the children received a portion, the widow her third, and Mrs. Wallace was appointed administratrix of the estate. At her death, about a year later, she left a will, disposing of the property which remained, to her own children and the daughter of her first husband, but leaving out the elder branch of the Wallace family. The proceedings passed through the usual course in the Surrogate's Court, and the matter was regarded as settled. In April last it was determined to exhume the remains

of Mr. Wallace, to see if the will could not be found. The casket has since been opened; and, on Jan. 31st, the following particulars were made public through the newspapers. The deceased had been buried in a dress suit, and, carefully placed out of sight between the vest and shirt, was found the missing will, in a very moldy condition. The family decline to make the contents of the will public at present, only stating that they are satisfied as to its contents, and that their father fully carried out in it his stated intention to provide for the children of his first wife, as well as for his second wife and family. As the estate, amounting to about \$30,000, has passed through several hands, it is believed that there is not sufficient remaining to warrant carrying the matter to the courts. It is not known who placed the will in the coffin.

* * *

WE take pleasure in acknowledging receipt from Mr. Geo. H. Hazenstab, of No. 904 South Fourth-st., St. Louis, of a copy of the photograph he took in October last, when the delegates to the Carriage Builders' Convention were grouped before him in the race-course. It is remarkably clear and satisfactory; and although the print measures only nine by eleven inches, and contains over two hundred faces, nearly all of these are clearly distinguishable, and many of them are highly satisfactory portraits. Prominent in the foreground stand Messrs. Hooker, Pray, McLearn, Emerson, Firestone, Timken, Wright and Haydock; and among the others are many that are strikingly good. It is certainly well worth the price (seventy-five cents), as a pleasant keepsake, to all who are included in its portrait gallery.

* * *

EARLY last month we prepared a review of the condition of the carriage trade of this country which was rather depressing. We have torn up that report. Since then, a change has occurred. The evidences of this change are perhaps not as numerous or as positive as might be wished, but they are nevertheless unmistakable. They promise no boom in business, but they do seem to promise that the slough of despond has now been left behind, that lowest prices have been reached and passed; and that the manufacturer may now feel some assurance, for a long time to come, that he is doing business on a rising market, and that every dollar's worth of goods he buys to-day, and every dollar's worth of labor he adds to those goods to-morrow, will be worth a little more, rather than a little less, day after to-morrow. This is always cheering to the carriage manufacturer. Without assurance as to this fact, he is compelled, if a wise man, to buy from hand to mouth merely as his needs require. This is what the wise houses have been doing for many months past. This is what has prevented the carriage-makers from showing a longer list of monthly failures. This is what has kept the shelves of the carriage-supply houses loaded down with goods, and made them so discouraged that they scarcely had courage to advertise that they were still alive. A change from this condition of business paralysis is already apparent. Caution is still the rule, and is still the best wisdom; but, in place of no buying, there is some buying, and at prices somewhat advanced from those of December last. It seems reasonable to expect that a continuance of the same movement, and with accelerated speed, will characterize the opening of the spring season. The present stock of finished carriages in this country is exceptionally small,—probably not equal to nine months of fair demand; and, with a fair demand, builders must now prepare to re-stock. Many are already doing so. During the months of October, November and December, reduced forces and three-quarter time were the rule, and not the exception. In New-York, New-Haven, Philadelphia, and other leading cities, old workmen of known skill are now being taken back day by day, old forges are being re-kindled, and there is in the air that feeling of spring and renewed hope, which, of itself, will largely aid to banish the uncertainty of recent months and usher in a newer and better future for the trade.

* * *

THE Abbot-Downing Co., whose trade may be considered a fair index to the general condition of business throughout the country, report that, after an exceptionally dull fall, they have opened the year with a business which, up to the middle of February, was double that of last year. In their repairing department in this city, they have had as much as they could positively attend to, and they are employing a full force of workmen on full time. In their

Concord factory, they have about their usual complement of hands, and orders already in hand promise to keep these fully employed for some time to come.

* * *

SAMUEL DOWNING, father of the late Charles Downing, which latter died in Newburgh, N. Y., Jan. 18, 1885, aged 82 years, was a carriage-maker by trade, and carried on the business in Lexington, Mass., and Newburgh, N. Y., for a period of 34 years. Samuel Downing was also father of the late Lewis Downing, who commenced the carriage business in Concord, N. H., in 1813, where it is still continued by his son and associates, under the firm name of the Abbot-Downing Company. In this connection, it is a very remarkable circumstance, probably without a parallel, that from the time Samuel Downing commenced learning the carriage trade in 1772, until the present time, 1885, it will make 113 consecutive years of service in the same business by the father, son and grandson, and a total of 143 years' active service by the same persons, viz.: Samuel Downing from 1772 until 1810, 38 years; Lewis Downing from 1807 until 1864, 57 years; and Lewis Downing, Jr., from 1837 until 1885, 48 years. The latter is still in the business, and President of the Abbot-Downing Company. The original shops, established 72 years ago, now occupy the same ground they have occupied for the past 68 years. Mr. Downing hopes to continue in the business long enough to round out a grand total of 150 years' services by the three generations of father, son and grandson, in which hope *The Hub* heartily coincides.

HOW TO IMPROVE THE EFFICIENCY OF THE CARRIAGE-MAKERS' OFFICE DEPARTMENT.

ACTION ON THE LAWSON VALENTINE OFFER.

SEVERAL letters are now before us inquiring what disposition has been made by the School Committee of the \$1,000 proffer by Mr. Lawson Valentine, made public at the St. Louis convention in October last.

Two meetings were recently held by the Committee, at which this subject was made the special order of business, namely: on January 30th and February 13th. The former was attended by Messrs. Britton, Pray, Fitz-Gerald and Houghton, constituting the full executive committee of the School Board, together with Messrs. Lawson Valentine, John D. Gribbon and Rufus M. Stivers. Mr. Valentine explained in detail the object which he had in view in making the offer. His own acquaintance with the carriage trade led him to believe that, outside the cities, the office department of the carriage shops was, as a rule, less well understood than the mechanical branches; and he thought that all proprietors and office-workers might be interested, and probably benefited in some detail of the business, if the School Committee could organize some plan by which the latest and most convenient methods of book-keeping, making estimates, taking account of stock, attending to correspondence, drawing policies for insurance, etc., etc., could be gathered from the experts in the trade, and then made public in some form whereby they might be grouped and compared, thus permitting each manufacturer to adapt to his own needs the best and most economical methods of office management. His offer had been made with a view to attract attention to the importance of the subject, and to cover the expense of starting an educational movement in this direction. The manner of its application he desired to leave entirely to the judgment of the Committee.

Mr. Valentine's views were heartily endorsed by all present, and the Committee are now actively engaged in devising a plan of action, which they hope soon to complete and make public. In the meantime, the suggestions of all well-wishers of the trade are earnestly invited.

A MARINE bicycle, tested at Springfield, resembles the roadster in only two particulars: the rider being astride a saddle, and working with his feet and hands. The water machine consists of two parallel beams about four feet apart, each six inches deep and eight inches thick in the center, tapering to the ends. In the middle is the saddle, and behind that a mock wheel. The pedals turn two cogs, one of which is at the end of an iron rod connecting with an eight-inch screw at the stern. Working the pedals causes a lively flutter of the little screw, and sends the craft along faster than a man will ordinarily row a pleasure boat. Ploughing along in mid-stream makes the rider look very much as if he were walking on the water.

HOW TO BOX CARRIAGES FOR SHIPMENT.

KINGSTON, ONT., Feb. 5, 1885.

EDITOR OF THE HUB—DEAR SIR: We are about to send a Landau, with leather falling top, to the World's Fair to be held at Antwerp, and having never shipped anything across the ocean heavier than a light Buggy, we shall be much obliged if you will kindly let us know how to pack it for shipment. The articles for exhibition are to be shipped by the first of March, so that an early reply will particularly oblige us.

Yours truly,

J. W. BROWN & Co.

REPLY.

Several inquiries similar to the foregoing have recently been received, seeming to indicate that there is a growing interest in export work. As our contribution toward this very desirable end, we have taken pleasure in interviewing a well-known specialist of this city, who has had long experience in boxing carriages for shipment both by steamer and railway, and we present below a detailed report of the facts which he has kindly communicated on the subject.

* * *

The top of any leather-top vehicle, such as the Landau mentioned by our correspondent, should be kept in a standing position, as lowering it would be sure to injure the leather, by introducing wrinkles which could not readily be removed.

The lumber to be used, to make a first-class job, should be tongued and grooved boards for the sides, ends and top; and rough pine boards for the bottom and pieces used for inside packing. Several pieces of scantling, 3 × 4 in. square, will also be necessary.

To begin with, take the exact measure for the length and width of the body, and make the bottom portion. In width and length allowance must be made for the thickness of the uprights on each side and the ends, which are let into the bottom flush with the outside. The number of cross-pieces for the bottom must be determined according to the length of the box. These are nailed to the top of the long pieces by clinch nails. Another piece of board is nailed on the sides, on top of the cross-pieces, and parallel with the lower bottom pieces, to give a better hold for the uprights on the sides.

When the bottom has been finished, then roll the carriage upon it, and raise it by means of a screw trestle,—the front first. Next take off the front wheels. Pieces of scantling, about 18 in. long, are next fitted to the axle-arms, close up to the collars. This is accomplished by having holes bored into the scantling as close as possible to the top edge of the scantling, thus permitting the axle-arms to clear the bottom boards. These pieces of scantling are fastened securely to the bottom by nails and screws. The same process is followed in the case of the rear axles. The nuts, D-plates and linch-pins (if Collinge patent axles are used), are left on the axle-arms, and also the leather washers. The caps, which are all marked or numbered, can be packed together, or fastened to the bottom near the axle-arms to which they belong, by a leather strap running crosswise. The latter method is preferable.

The cushions are next placed at the bottom of the body between the two seats, and covered with bagging; and a board is placed on top of the cushions between the rockers. Two uprights are nailed to this board, high enough to extend about 2 in. above the top of the door. Another board is then fastened on top, fitting between the sides of the box.

The door glass-frames are dropped into the door, as they would otherwise be in the way of the batting used to hold the cushions in their places. The front glass may be either dropped or raised. Strips of paper are sometimes pasted diagonally across the inside of all the glasses, and it is claimed that this is a great safeguard against breakage.

To keep the springs from moving, a board is fitted edgewise between the springs, long enough to fit close to the sides of the box, and nailed to the sides; and, for further security, cleats are fastened on each side. Another board, about 7 in. wide, is placed on top of the body-loops, and also nailed to the sides. Before nailing this last-named board, the ends are pressed downward as much as possible, to give more stiffness; and cleats are fastened to the top and bottom for further strength.

To prevent the paint on such parts of the springs and body-loops as come in contact with the boards, from the liability of getting bruised, a piece of thick harness-leather, greased with tallow, is placed between the board and the springs or other painted surfaces, with the greased side facing the paint. The front springs are arranged in the same manner. It should be

added that a board is also fitted between the springs, similar to that on the rear axle, and fastened to the sides of the body.

To secure the rear wheels properly, proceed as follows: A piece of scantling, 3 in. square, is placed across the boot, on top of the bottom, between the front pillar and the toe-board, and nailed to the sides of the box; and two pieces of thick, rough pine boards are nailed across this scantling. One piece of board is then nailed to each of these cross-pieces in a vertical position; and, on top of these upright pieces, a board, the full width of the box, is nailed across. A hole is bored through the center of this board for a ½-in. bolt. The rear wheels are then placed on top of this board, with their back ends facing each other. Another board, of the same length as the last-named, is placed across the top of the uppermost wheel. Leather washers are placed between these boards and the front ends of the hubs, to prevent the paint from being bruised. A bolt, ½ in. thick, and long enough to extend through the boards and the hubs, is then inserted through the hubs. The bolt-head is about 2 in. square, to prevent it from sinking into the wood. An iron washer, ¼ × 2½ in., is placed under the nut, to prevent it from sinking into the wood. The front wheels are secured to the rear end of the box by a bolt of the same dimensions as that used for the rear wheels, the nut coming on the inside. The pole is wrapped in canvas, and fastened to the bottom of the box.

When all this preliminary work has been completed, and the uprights of the sides and front and rear have been fastened to the bottom (the side uprights are about five in number, while one is sufficient for each end), the nailing of the sides and ends to the uprights comes next in order; and all the cross boards and cleats above-mentioned are fastened to their respective places as the box reaches the proper height.

The top of the box is made to slant either from one side to the other, or from back to front. To keep the top from sagging, several pieces of scantling should be let in the whole length of the body.

When the box is thus finished, the whole top, and half of the sides and ends, are covered with black canvas; and, to prevent this canvas from getting torn, slats are nailed at intervals on the top, sides and ends.

* * *

The above directions were intended by our informant to apply specially to the case of the Landau mentioned by our correspondent; but they cover generally the requirements of all boxed vehicles. We have mentioned the leading points only, and some minor questions will very likely arise in the course of the work, but these may safely be left to the judgment of the workman to whom the task is confided.

REPAIR TARIFF FOR PORTLAND CUTTERS.

N. Y., Feb. 5th.

EDITOR OF THE HUB—DEAR SIR: In response to the invitation given in your February number, page 773, for a specimen list of prices applicable to sleigh repairs, I herewith inclose a few of the prices which prevail here for Portland Cutters. The prices of swell-body cutters I do not include, as we do not have many here. It would be very desirable to obtain Albany prices for swell-body cutters.

WOODWORK.

New Runner for Portland Cutter	\$2 00
Splicing Runner	80
New Beam	1 00
Splicing Beam	40
New Knee	75
New Side Panel	3 50
New Back Panel	5 00
New Dash Panel	3 50
New Fender	1 50
New Bracket-board	2 00

IRONWORK.

New Set of Steel Shoes	5 00
New Knee-brace and T-iron	1 00
New Runner-brace	50
New Draw-iron	1 25
New Shifting-rail (complete)	2 50
New Goose-neck Iron	1 25
New Bracket-trace	35

PAINTING.

Painting, Striping and Varnishing Portland Cutter, from wood	25 00
Painting, Striping and Varnishing Cutter, over old paint	15 00
Touching-up and Varnishing Cutter	6 50

TRIMMING.

New Trimming for Portland Cutter, throughout	25 00
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The above skeleton list will serve to "start the ball," according to your suggestion, and will, I hope, call out other figures, either above or below my own.

Yours truly,

C.

DECISION IN THE JULIA MORGAN CARRIAGE CASE.

ABSTRACT OF OPINION BY THE SUPREME COURT OF THE UNITED STATES.

IN the case of Chester A. Arthur, late Collector of the Port of New-York, Plaintiff in Error *vs.* Julia Morgan, Mr. Justice Blatchford, on Dec. 22d, 1884, delivered the opinion of the Court as follows:

* * *

Julia Morgan imported into the port of New-York, from Europe, in May, 1876, a carriage, on which, at the appraised value of \$667, the collector exacted a duty of 35 per cent., amounting to \$233.45, under the following provision of Schedule M of § 2,504 of the Revised Statutes (*p.* 474, 2d ed.): "Carriages and parts of carriages: thirty-five per centum ad valorem."

She protested in writing to the collector against paying the 35 per cent. duty, on the ground that the carriage was "personal effects" and had been used by her "over a year," and that she had shown this fact by affidavit, and that, under § 2,505 of the Revised Statutes, "personal effects in actual use" were free from duty. She appealed from the decision of the collector to the Secretary of the Treasury, and he affirmed it, and then she brought this suit.

At the trial the above facts were shown, and the plaintiff proved that the affidavit referred to was to the effect that the carriage was old and had been in use by her abroad for more than one year before its importation; that the affidavit was deposited with the defendant, and transmitted by him to the Secretary, with the appeal; that she was a native citizen of the United States, and had lived abroad some three years, as a temporary resident, prior to the importation, and had returned to this country about two weeks before the importation; that the carriage had been purchased by her in France, and had been used by her as a family carriage abroad for more than one year before its importation; and that it was imported by her for her own use in this country, and was not intended for any other person or persons, or for sale.

The defendant offered no testimony, but moved the Court to direct a verdict for the defendant on the following grounds:

"First, that no evidence was offered to support the claim made in the plaintiff's protest, that the carriage was a personal effect in actual use, within the meaning of that term as used in section 2,505 Revised Statutes of the United States.

"Second, that the said protest was insufficient to raise the point that the carriage was included within the meaning of the term 'household effects,' as that term is used in section 2,505 Revised Statutes of the United States.

"Third, that, even if the protest be considered sufficient to raise the last point, the carriage in question cannot properly be held to be included within the true sense and meaning of the term 'household effects,' as that term is used in section 2,505 Revised Statutes of the United States."

The Court denied the motion on each ground, and the defendant excepted to each ruling. A verdict was rendered for the plaintiff, the Court having directed it on the ground that, on the testimony and within the meaning of § 2,505, the carriage was "a household effect," and the exaction of duties was illegal. The defendant excepted to the direction, and, after a judgment against him, brought this writ of error.

* * *

In June, 1876, the Attorney-General advised the Secretary of the Treasury that the words "personal effects," did not include carriages previously in use, but only such things as are worn, like apparel, upon the person, or are used in connection therewith; and shortly afterwards he advised the same officer that the words "household effects," did not include carriages used abroad not less than one year and intended for personal use here. On this construction the department has acted. The last opinion proceeded on the ground that early and repeated decisions in England had held that books, wares, horses, etc., did not pass under bequests of "household goods and effects," and that the express mention of books, and the omission of other articles so determined not to be included under the general term "household effects," indicated that "carriages" were not within the exemption.

The word "effects" means "property or worldly substance." When it is accompanied, in a will, by words of narrower import, the bequest, if not residuary, may be confined to species of property *ejusdem generis* with those previously described. But the analogies to be derived from wills are not strictly applicable to a case like the present, and no material aid can be derived from decisions in regard to wills. The construction of the words "household effects" in a will often depends largely on the meaning of words in other provisions in the will, and upon the qualification by the word "other," as referring to specific articles before named. In the present case the only direct qualification of "effects" is "household."

Persons who dwell together as a family constitute a "household." In New-York, a statute exempted from execution a cow "owned by any person being a householder." In *Woodward v. Murray*, a judgment debtor, who owned a cow, had left his wife and children, they continuing to reside in the house he had occupied. While they were on the road, removing to the house of the wife's father, with the cow and their household furniture, the cow was seized on execution. The Court held that the exemption continued so long as the wife and children remained together "as a family," and that they continued to be the debtor's "household" and he the "householder."

* * *

The question for decision in this case is, whether the carriage of the plaintiff fell under either of these heads: (1) household effects, in use, of a person or a family from a foreign country, used abroad by the person or the family not less than one year, and not intended for any other person or persons, nor for sale; (2) personal effects, not merchandise, nor for sale, of a person arriving in the United States.

The carriage had been in use as a family carriage, abroad, by the plaintiff, as owner, for more than a year. She came from abroad after a temporary residence there of three years, and imported the carriage two weeks later for use here, and not for any other person nor for sale. Was it "household effects" or "personal effects" of the plaintiff? We think that it fell within Clause 1 and was "household effects."

In the provision respecting the "household effects" of persons or families, there is an evident intention to include articles which pertain to a person as a householder or to a family as a household, which have been used abroad not less than a year, and are not intended for others nor for sale. A carriage is peculiarly a family or household article. It contributes, in a large degree, to the health, convenience, comfort and welfare of the householder or of the family. The statute is not limited to articles of household furniture, or to things whose place is necessarily within the four walls of a house.

Clause 2 above uses the words "personal and household effects." This serves to show that, by the use of the words "household effects," alone, in Clause 1, in the same section of the statute, something is intended different from "personal effects;" and that these words embrace articles which the words "personal effects" do not cover.

So, too, if the words "other personal effects," in Clause 3, should be extended to embrace articles properly covered by the words "household effects" in Clause 1, such household effects would come in free, although not used abroad for a year, and the door would be opened wide for the introduction, without duty, of large numbers of articles, as "household effects," which it is intended should pay duty. We do not find it necessary, in this case, to consider any further the construction of the words "other personal effects," in Clause 3, because we place our decision on the ground that this carriage was "household effects" of the plaintiff.

The protest claimed that the carriage was "personal effects" in actual use, and, as such, free and not subject to the duty imposed on it, but did not claim it to be "household effects." The Solicitor General concedes that the objection to the protest is a "bare technicality," and that its language could hardly mislead the officers. A proper protest, as well as an appeal, are prerequisites to the right to sue. The protest must set forth "distinctly and specifically" the grounds of objection to the decision of the collector as to the rate and amount of duties. This provision was taken from the Act of June 30th, 1864, and is substantially the same as that in the Act of February 26th, 1845. A protest is not required to be made with technical precision, but is sufficient if it shows fairly that the objection afterward made at the trial was in the mind of the party, and was brought to the knowledge of the collector, so as to secure to the Government the practical advantage which the statute was designed to secure. This protest apprised the collector that the carriage was claimed to be free, under § 2,505, as a carriage actually used abroad over a year. The "household effects" clause was in the mind of the party, and the collector could not fail to so understand. The protest was sufficient.

The judgment of the Circuit Court is affirmed.

* * *

Editorial notes regarding the apparent bearings of the above decision on the interests of the American carriage trade, will be found under "Trade Gossip," in this number, page 829.

EDITORIAL PUNSTERS ON WHEELS.

ALTHOUGH a woman may ride alone in a wagon, she can never be lonely, because she always has fellows on each side of her.—*Every Saturday*. Yes, but how can she flirt with the fellows when the "hub" always goes around with them?—*Journal of Commerce*. This is getting tiresome.—*Saturday Night*. You spoke too soon.—*St. Louis Spirit*. If you don't quit this thing, some long-reached man will take the wagon pole and ax-el out of you.—*Southern Coach-Maker*.

Coach, Harness and Saddlery, in its issue of Jan. 31st, refers to the recent decision of the Supreme Court of the United States with reference to the Julia Morgan carriage case (see abstract of this opinion on page 832), with the following vigorous protest, which, in our opinion, is scarcely justified by the facts of the case. It says:

“The number of carriages that have been used abroad one year by the party who imports them is so small as to excite ridicule, but the number sworn to has been large, and will again become so. In 1872 we saw a Landau that was entered at the Custom House as second-hand, that had never been used enough to wear off the surface finish imparted by the rollers in rolling the tire, but there was a little Paris mud on the wheels,

JANUARY 13th, 1885.

JANUARY 13th, 1885.	
Horse-detacher.....	T. M. Ferguson... Sucarnochee, Miss.
Vehicle Hub.....	P. Gilles and M. Link... Kenosha, Wis.
Rein-hook.....	D. Hutchinson, ³ Lynn, Mass.
Elastic Tire for Wheels.....	{ J. Leigh and R. W. H. McDowell, ⁴ Manchester, England.
Two-wheeled Vehicle.....	J. G. Stocks..... San Francisco, Cal.
“ “	{ R. F. Taliaferro and E. P. Mitchell, Hueneme, Cal.
“ “	J. Wesley..... Chicago, Ill.
Vehicle Wheel.....	J. H. Bissell..... Rochester, O.
“ “	W. H. Harding..... Springfield, Cal.
Wagon Seat.....	J. I. Dougine..... Chicago, Ill.

JANUARY 20th, 1885.

Carriage Spring.....	W. K. Fraley.....	Forest Hill, Ind.
Horse-checking Device.....	C. A. Bradford.....	Peru, N. Y.
Tire Tightener.....	N. G. Skaggs.....	Montgomery, Ala.
Vehicle Gear-iron.....	C. R. Wilson, ⁵	Detroit, Mich.
Vehicle Wheel.....	F. M. Priestly....	Grand Rapids, Mich.
Power Accumulator for Vehicles	L. Montgilion.....	Elk Ridge, Md.
Wagon Circle-post.....	N. L. Holmes.....	Racine, Wis.
Whiffletree Hook.....	H. C. Bates, ⁶	Miles, Iowa.

JANUARY 27th, 1885.

Paint-tub for Wagon Wheels . . .	M. T. Winton	Binghampton, N. Y.
Spring-motor for Propelling Vehicles	R. H. Garland	Chicago, Ill.



“There is a certain hypocrisy running through this tariff question that is disgusting. We can call to mind men who have made themselves conspicuous before commissioners and on the stump as advocates of a tariff, who have resorted to every subterfuge in order to pass carriages through the Custom House without paying duties, and we will not be surprised to see some of them making application for a return of the duties which they as a last quibble paid under protest. A few more decisions of this kind will give ultra free traders all they want without the intervention of Congress.”

COMPILED BY HUNTINGTON & HUNTINGTON.

JANUARY 6th, 1885.

Carriage Jack.....	J. McFarland, ¹	Richland, Iowa.
Device for Controlling Run-	} L. Roll.....	Wilkesbarre, Pa.
way Horses.....		
Thill-coupling	J. B. Armstrong.	Guelph, Ontario, Can.
“	} W. A. Kendall and	F. R. Glover, Framingham, Mass.
“		
“	W. P. Tracy.....	Grand Rapids, Mich.
Vehicle Brake.....	} P. H. Ingrahm, deceased; F. Ingrahm,	administratrix, Marathon, N. Y.

Die for Making Carriage Shaft-tips	}	A. L. Howard ⁷ ..	Mount Carmel, Conn.
Two-wheeled Vehicle.....		W. M. Buchanan.....	Columbia, Tenn.
“		P. F. Hellerstedt.....	Morrison, Ill.
Vehicle Wheel.....		J. Barbieri.....	Lansdale, Pa.
Detachable Wagon Stake.....		R. D. Shutt.....	Capac, Mich.

¹Assignor of one-half to T. C. Long, Iola, Kansas.

2 " of two-thirds to S. W. Harvey and J. Gregg, same place.

3 " to American Rein Hook Company, Nashua, N. H.

⁴Assignors by mesne assignments to Revere Rubber Co., Boston, Mass.

⁵Assignor of one-half to J. C. Wilson, same place.

6 " of one-half to W. Courtnaye, same place.

7 " to Woodruff, Miller & Co., same place.

SPECIMEN SHOP RULES WANTED.

CHICAGO, ILL., Feb. 9, 1885.

EDITOR OF THE HUB—DEAR SIR: We would like a copy of the "Shop Rules" published by you some time since. We intended, when we received them, to keep them for future reference, but they have been mislaid. If any expense attends your response to our request, please let us know.

Yours truly,

C. P. KIMBALL & Co.

ANSWER.—We are sorry to be compelled to again remind our readers that we are no longer able to fill orders of this kind, as we have only a single file of the back numbers of *The Hub*, and these are contained in bound volumes.

If, however, there are six of our subscribers who feel sufficiently interested in the above subject to address us the request, we will republish, in a subsequent number, some of the best of the numerous tables of Shop Rules which have appeared from time to time in previous volumes.

Still better,—we invite all of our readers who have adopted printed Shop Rules, to send us samples; and, from these, we may very likely be able to select and publish some that are altogether better than any we have heretofore made public.



POSTAL-CARD ANSWERS TO CORRESPONDENTS.

To T. L., Providence, R. I.: There is an English publication, entitled "Guide to Painting Photographic Portraits in Water Colors," published by J. Barnard & Son, of 339 Oxford-st., London, which will fill the bill, we think.

To P., New-York City: The advertised price of the "Climax Head Lift," as supplied by the manufacturers, Messrs. R. Harrison & Son, No. 1 Stanhope-st., Easton Road, London, Eng., is £7 10s., or about \$37.50 per set of fixtures. If you require further particulars, address the makers, as above.

MR. FRENCH'S ADDRESS.

NEW-YORK, Jan. 28, 1885.

EDITOR OF THE HUB—DEAR SIR: A man named French made some experiments in veneers, etc., for carriage roofs. Do you happen to know his address, or of any clue to him?

Yours truly,

P.

ANSWER.—See Mr. E. F. French's advertisement in our last number, page 804.

A PROBLEMATICAL PROBLEM.

EDITOR OF THE HUB—DEAR SIR: Will you please let me know the proportional increase of strength for each extra thickness in width and depth of hickory, ash and poplar.

Yours truly,

E. L. H.

ANSWER.—In its present form, this problem is altogether too much for us. Please state question more clearly.

PHILADELPHIA CARRIAGE REPAIR TARIFF WANTED.

PHILADELPHIA, PA., Feb. 4, 1885.

EDITOR OF THE HUB—DEAR SIR: Please send us a copy of the Philadelphia Repair Tariff, and oblige.

Yours respectfully,

M. & K.

ANSWER.—See July *Hub*, 1882. We are sorry that we cannot supply our correspondents with a copy, but we have only one, and that is in a bound volume.

WHITEWOOD FOR SALE.

RAVENNA, O., Feb. 3, 1885.

EDITOR OF THE HUB—DEAR SIR: I have a quantity of 5/8-inch whitewood, from 24 to 30 in. wide, suitable for coach panels and other heavy work. Can you tell me of any manufacturer in need of such, or recommend any that you think would be likely to buy one or two car-loads?

A. B. SEYMOUR.

ANSWER.—Whitewood such as our correspondent mentions, if of first-class quality, ought to find a ready market. Possibly some of our readers may like to correspond with Mr. Seymour on the subject.

THE OTHER HALF WANTED.

COLUMBUS, O., Feb. 10, 1885.

MESSRS. HEALEY, WILLIAMS & CO.—DEAR SIR: In the September issue of *The Hub* there is an article on "Representative Carriage Factories: No. VIII," descriptive of your works. Can you send us the previous issue of said article. By so doing, you will much oblige.

Yours truly,

THE BUCKEYE BUGGY CO.

ANSWER.—Messrs. Healey, Williams & Co. have forwarded the above inquiry to us. The article referred to is complete in itself. Previous articles belonging to the same series will be found scattered through preceding volumes of *The Hub*, but we are unable to supply them.

COST SCHEDULES FOR NEW WORK.

DAYTON, O., Feb., 1885.

EDITOR OF THE HUB—DEAR SIR: I believe there is a cost schedule published by the trade. Can you tell me where and how to get it?

Yours truly,

C. A. BEDELL.

ANSWER.—The Carriage Builders' National Association has a collection of cost schedules for new work, carefully compiled by a special committee, which are published in the form of a pamphlet. It is intended

for members only, but the valuable services which our correspondent has already conferred upon the trade, by his detailed repair schedules, gives him at least the right to make application for one. Address Mr. Frank H. Hooker, Secretary, New-Haven, Conn.

PIECE-WORK PRICES FOR BODY-MAKERS.

NEW-YORK, Feb. 3, 1885.

EDITOR OF THE HUB—DEAR SIR: Please inform me [and many other subscribers of your valuable journal will no doubt be interested] the prices paid to woodworkers, working piece-work, for the following work, all of which is first-class, and all of which is sawed out in the mill according to pattern, ready for use: Buggy bodies, each; Doctors' Wagon bodies, with solid high back; Doctors' Phaeton bodies, and Pony Phaeton bodies.

You will confer a favor by publishing the same in the next number of *The Hub*.

Respectfully yours,

K. J. G.

ANSWER.—Such prices vary widely in this city, according to the grade of work and the facilities afforded to the workmen. According to the best of our knowledge, the piece-work prices for thoroughly first-class work range about as follows: For Square-box Buggy bodies, from \$5.50 to \$12; for Doctors' Wagon bodies, from \$7 to \$10; for Physicians' Phaeton bodies, from \$7 to \$12; and Pony Phaeton bodies, from \$7 to \$8.

WHO BUILDS MOST CARRIAGES AND BUGGIES?

TORONTO, CAN., Jan. 20th.

EDITOR OF THE HUB—DEAR SIR: Will you kindly inform me whether Brewster & Co. of New-York turn out the most carriages and buggies. If not, who does? Please answer through your "Correspondence" column, and oblige.

J. C. N.

ANSWER.—We suppose this is another of those bets which are so often referred to us for decision. If so, the conditions are too imperfectly stated for us to be of much assistance; and we will therefore endeavor to so state the case as to make the parties call it "off."

Numerically, there are many carriage-builders in the United States whose annual output of new vehicles far surpasses that by Messrs. Brewster & Co., of Broome-st., New-York; but we believe we may safely say that, in strictly *pleasure carriages*, the firm named produce *in value* more than any other one house.

WHO BUILT MAUD S. HER LAST SULKY?

LEXINGTON, KY., Jan. 27.

EDITOR OF THE HUB—DEAR SIR: Can you tell us whose make of Sulky that was which was used by Maud S. when she scored her record of 2.09 1/4 at our Fair Grounds last November? We understand it was a Brewster Sulky. Which house?

Yours,

B.

ANSWER.—The Chas. S. Caffrey Co., of Camden, N. J., built the Sulky you refer to. In a letter received by us from that house under date of Dec. 12th last, they make the following statements which will very likely interest our correspondent. They say:

"Replying to yours of 28th ultimo, we would say that the inclosed cut gives a very good view of the Maud S. Sulky. Maud S. stands 15 3/4 hands front, and a trifle higher back,—probably 16 hands. She has a very smooth and easy way of going, and is not very hard on a sulky, but requires one to fit very nicely, and if it so fits, she can use the very lightest Sulky imaginable. The one she has now was built especially for this grand effort, and was completed in two weeks after the order was given. It weighed 38 pounds complete, as she is hitched to it."

WANTS TO KNOW ALL ABOUT CURLED HAIR.

WEST RANDOLPH, VT., Feb. 9, 1885.

EDITOR OF THE HUB—DEAR SIR: Will you please inform me through the columns of *The Hub*, or by letter, regarding curled hair. I have often been asked the questions: "Where does the stuff come from?" and "What do they get it off from?" and "How do they make it so kinky?" and such-like questions. So far, I have never been able to reply, and hoping now to be enlightened on the subject, I am,

Respectfully yours,

T. RIMMER.

ANSWER.—We have referred the above inquiry to Messrs. Baeder, Adamson & Co., of Philadelphia, Pa., the well-known specialists in curled hair, glue, etc., who have kindly communicated to us the following facts, which seem to fully cover the questions of our correspondent. They say:

"For curled hair, the raw material comes from the sheared hair from cattle tails, horse tails and horse manes,—the cattle tails principally from America, and the horse tails and horse manes from Buenos Ayres and Monte-Video, South America.

"The curl,—or, as your correspondent expresses it, the 'kink'—is produced by manipulating and manufacturing it. It is spun into a rope, boiled and dried, and then opened by a machine, and picked by hand, which produces the curled hair.

"The process of manufacturing would take some time to explain in detail; but we should be much pleased to give any one the points on this

subject, to make up an interesting article; and if you would send some one to our New-York store, No. 67 Beekman-st., they might possibly post you on this subject, or, if you could, send some one here to interview our Mr. Charles B. Baeder."

NOTE.—If our correspondent, or any other reader, so desires, we shall be happy to accept our Philadelphia friends' kind offer, and present further details in a subsequent number.

APPROVAL OF THE SCHOOL COMMITTEE'S FREE-HAND CIRCULAR.

MR. JOHN PHILIPSON, the well-known coach-builder of Newcastle, Eng., in a letter recently addressed to the Chairman of the Technical School Committee in this city, endorses, in the following words, the recent circular of the Committee on the subject of free-hand drawing. He says:

"I have read with much pleasure the circular addressed to the carriage manufacturers and their employes in America by the School Committee, and I must highly compliment the Committee on their judgment and foresight. There is no doubt that free-hand drawing is the first stepping-stone to attaining a perfect knowledge of carriage drawing. I have, for above twenty-five years past, been one of the council of the Society of Art Schools in Newcastle, and I have felt the difficulty in enforcing the perfection of students in free-hand drawing, before going into applied mechanics, geometry, building, construction, etc. Many

painting that were "way off." He showed, however, how his filler worked on hard wood, and his method was precisely the same as the Osgood man's mode of handling it.

He was prepared to sell the receipt, for which he asked \$6.00, and the buyer was required to sign a certificate that he would not divulge the secret. He carried several of these certificates with him, including one with Cunningham's name, of Rochester. I told him I did not want any of it, and then he came right down to \$2.00 at one jump. I felt like telling him what I thought he was, but decided to wait until I knew. He said he found this a poor section for him, and he thought he should go to New-York direct. He then went out, but came back in about one hour, and began talking again, and finally offered this receipt to me for \$1. I did not bite at all, however.

When the Osgood man was here, he did not press the thing much, and one thing I think shut him off was the fact that I always keep a lot of trade journals on a shelf, and when he got sight of these, he did not say much more. He was stoutly built, but this Haviland man was small in size, say, about five feet, seven or eight.

I will leave the rest to you, as very probably you have already heard from him in other sections.

Let me add that you have done a good work in keeping the Osgood swindler from getting money out of the trade. I am quite sure he would have sold a receipt to a furniture firm here, if I had not informed them who and what he was.

Yours truly,

C. E. VADER.

NOTE.—No, we never before heard of the so-called "Haviland Filler." The man mentioned may or may not be one of the several swindlers to



I. "My father used to drive a Dog-cart along this same avenue!"



II. This is the Dog-cart his father used to drive.

youths think any kind of sketching will do, and they long to get a rule and compass in their hands; but, to attain perfection in carriage drawing, it is necessary to first be a master in free-hand work.

It is pleasing to see the energy which your Committee keep up, and to know that they are watching all that is going on in other important art and science schools. By this friendly interchange of ideas and emulation to advance, many improvements may be expected from the rising generation, as they have advantages which were not offered when you and I were young."

NOTE.—The above is but one of many hearty endorsements which the circular referred to has received from those interested in technical education; and the Committee's belief in the soundness of the views therein set forth are strengthened, day by day, by further experience with new pupils desiring to enter the evening or corresponding classes. "Free-hand drawing, first and foremost," should, in their opinion, be adopted as the motto of every institution pretending to give practical instruction in any branch of mechanical or art education.

ANOTHER ALLEGED TRAVELING SWINDLER.

BATAVIA, N. Y., Feb. 11, 1885.

EDITOR OF THE HUB—DEAR SIR: On the 10th inst. a man came into my shop with a new wood-filler, calling it the "Haviland Filler," of Cleveland, O., and hailing from No. 101 Superior-st., I think.

He had samples of what the filler would do on wood, and showed the filler itself, which was of whitish color. He also showed various testimonials from large builders, such as Jas. Cunningham & Son, Henry Hooker & Co., the Studebakers, etc.

Well, after receiving a visit from the Osgood Wood-Filler man last December, and after reading the numerous frauds recorded in *The Hub*, I made up my mind he was something of this sort. I therefore questioned him very closely. He seemed to be a little new in the business, and told some things about carriage

whom we have previously referred. If really an honest man—which seems highly improbable—he would seem a proper subject for an insane asylum; and we earnestly hope that his next host will hand him over to the police authorities for examination as to both his mental and moral condition.

In view of the above testimony, we beg to again repeat the advice which we have already so often made public, namely: *Have no money transactions with strangers!*

THE LAUNDRY DELIVERY WAGON.

THE delivery wagon of a down-town laundry recently attempted the difficult feat of traveling on three wheels.

The horse noticed the lack of unanimity about the wagon by accelerating his pace, paying no attention to the driver, who seemed to be desirous of returning to the fallen wheel, and effecting a reconciliation between it and its fellows. A compromise was accomplished by means of the fallen axle, that had been touching the ground only in high places till it caught in a rail. A stay of proceeding was immediately obtained. The wagon made a wild plunge and turned over. The horse reversed himself in the harness, laid his head against the dashboard, and proceeded to distribute, without reference to their addressed destination, the various packages of collars and cuffs that had been deposited before his feet. The distribution continued several minutes. Then a deputation of car-drivers held the horse's head until he was divested of everything but an E. & W. collar and a white tie. He arose unhurt. A seedy-looking person was seen in a side street after the disturbance was quelled. "Was you hurt?" asked a comrade, noticing that he buttoned his coat with an effort, "Not much," replied the other, "I got a few cuffs though."

TRADE REPORTS FROM SPECIAL CORRESPONDENTS.

TRADE REPORT FROM CALIFORNIA.

SAN FRANCISCO, CAL., Feb. 4, 1885.

EDITOR OF THE HUB—DEAR SIR: I have recently been circulating around among the leading carriage-makers on this coast, and have taken a few notes which may interest your readers.

The causes that have made trade exceptionally dull in the East have had a similar effect here, but not to an extent sufficient to close up any of the leading shops.

In San Francisco I found Messrs. Larkins & Co. very busy finishing up some extra-fine heavy jobs, such as rockaways, coupés, barouches, and landaus, and doing work that will compare favorably with anything built at the East.

Messrs. A. Folsom & Son, proprietors of the "Fashion Carriage Factory," are also turning out some fine work. They are introducing into the market in good style the Rice "Coil-spring." Their sample jobs with this spring, shown at the Mechanics' Pavilion, attracted a great deal of attention.

Mr. M. J. McCue, on Market-st., is making fine work, and lots of it.

Mr. M. P. Holmes, on Mission-st., makes a specialty of the "Triple-spring." The streets of San Francisco are probably more trying on a buggy than any other city in America, and the "Triple-spring" carries off the honors for ease of motion and wearing qualities. About three-fourths of the business buggies in use in this city are supplied with the "Triple-spring."

At Sacramento, Mr. A. Meister ranks among the first-class builders. His repository is well filled with work that would satisfy the most fastidious.

Mr. J. F. Hill is one of the pioneer builders. His large factory is well furnished with machinery, and his line of work includes spring wagons, and the California four-spring, as well as buggies and carriages.

At Stockton, Mr. Wm. P. Miller has what is probably the finest carriage factory on the coast. It is fitted up with the latest improved machinery and all modern improvements. Mr. Miller is also one of the pioneers, and he has held his rank through a long series of years as a builder of first-class work. Mr. Miller says the times are rather dull, but, if I am not mistaken, his trade is largely among the class that won't walk even in hard times.

The live carriage men at the live city of San José are Hatman & Normandin. They are practical carriage-builders, and, in addition to a fine line of their own work, their repository shows a fine assortment of the best Eastern manufacturers' products. They can please almost any buyer except the customer who wants to get three good buggies for \$100.

A good many Eastern manufacturers have regarded California as a bonanza field for unloading their surplus stocks, but most of them have learned that the people here prefer the home-made carriage even at a higher price. This accounts for the fact that so many of the home shops have not only a past that they are proud of, but a promising future. I am not positive, but I think I saw *The Hub* in the office of every shop I have named. Whether that little circumstance has anything to do with the fact of their being "up to the times" and "busy," when times are dull, only an editor can decide.

Yours truly,

MANUFACTURER.

A PLEASANT TRADE-NEWS LETTER FROM AUSTRALIA.

ADELAIDE, SOUTH AUSTRALIA, Dec. 26, 1884.

MESSRS. HOUGHTON & KEHRL—DEAR FRIENDS: You will by this time be looking for me to fulfill my promise, which is only a pleasure to me. The year is now nearly at a close, and I recall that my promise was to write at least once each year.

To give you most of the news in the shortest space, I will begin at the time we last saw you,—by "we" I mean my friend Mr. J. Damyon and myself. We left your shores the next morning by one of the Anchor Line of steamers, called the *Furnessia*. After a pleasant trip we landed at Glasgow, Scotland, being a little over nine days on the water. We were quite pleased with the accommodations, which were the best we had during our travels. We stopped at the North of Ireland, at a place called Moville, and afterwards stayed in Glasgow a few days, where we were highly pleased with the city. In the carriage line there are some very fine shops, equal, we thought, to the London shops, if not even superior. In their carriage styles they have many different from anything I saw in New-York or London. When you make your next trip to England, try and visit Glasgow and Edinburgh, if you have not been there. [We have been there.—ED.]

We then went to London, and stayed there about five weeks, with the exception of myself, as I went into the country for two weeks out of the five. During this time I paid a visit to Mr. C. S. Windover's carriage works at Huntingdon, as I had previously worked there. This firm has made a great many improvements in their workshops since my departure for America. They have built a large new workshop, and fitted up some new machinery, such as spoke-turning, hub-turning, axle-turning and drilling machines, and a great many more improvements, all worked by steam. Mr. G. F. Budd has been made manager. He was foreman of the body-shop when I was last there, but a Yorkshire body-maker has now taken his place in that department.

We did not work in England or Scotland as we intended to. Trade was so quiet that we did not even endeavor to get a job. I was offered a job in Glasgow, but wages seemed so low that I did not accept it.

We then left England, sailing from Plymouth on Sept. 19th, by the steamship *Orient*; but the accommodations were not nearly as good as we had from America. We went ashore at Port Said, Suez and Arden on the route home. We had a very calm voyage. We experienced about two weeks of very trying hot weather, and then landed at Adelaide on Oct. 29th. Some of my friends were there to give me a welcome back after an absence of nearly four years. My friend Mr. Damyon went ashore at Adelaide for a few hours, and then proceeded to Melbourne, where he was welcomed back by his friends after an absence of nearly five years. I have heard that he is now working at the shop in Ballarat where he served his apprenticeship.

I am working at present in the shop which I left to go to England. There have been many alterations in carriage building in Adelaide since I left. One of our leading firms has been building tram-cars, and they now manufacture a great many for different companies. This firm has had a lot of machinery put up since I went away. Another large firm has had a fine new shop erected. This is one of the oldest established carriage houses in Adelaide, and the building is a credit to the firm. I would like to see others of our old-established places follow their example.

Tram-cars have recently progressed a great deal, and also railways. One of our leading firms sent a tram-car to Melbourne a few weeks ago. The Melbourne people are waking up with reference to tram-car lines. They always reckon themselves ahead of the Adelaide people, and so they are in many respects, especially protection, which is a great benefit to Victoria. That is what we want more of here, and then our colony would do better. I hear they are going in for cable cars in Melbourne, but the general opinion of the people is that these will not act as well as horse-cars. Most all our cars here have seats on top, being different in this respect from yours, but the reason is that we do not have much of a winter.

I am sorry I have no sketches of carriages and other vehicles ready to send you this time, but they shall follow before long.

The general condition of trade in this part of the world, during the last nine months, has been frightfully dull in all branches. In carriage-building they have all been on short time, and some of the shops have nearly reached twelve months of short time. Even now, which is reckoned our very busiest season, some are still on short time. We have a fair harvest this year, but the farmers are complaining of the low prices for wheat.

While I was away, one of our young Adelaidians, Mr. A. Langsford, started a varnish factory, the first one in the colony. He is an industrious young man, and we all wish him success in his undertaking. I was acquainted with him personally before I went away. The coach-builders speak well of the varnish. We want a few more of our enterprising young men in other branches to follow Mr. Langsford's example.

I have not heard lately from our other two New-Zealand friends, but I understand they are in Dunedin, and that Mr. White has gone into business with two others.

I cannot draw this to a close without thanking you for the kindness you showed us during our visit to your country. We shall never forget it. I am highly pleased with *The Hub*, and after having been in America, it will be still more valuable to me. I shall never regret visiting the States. I am only sorry that I did not go there twelve months before I did. I made many very pleasant acquaintances both at New-Haven and Rochester, both in and out of the trade of carriage-building, and I shall not forget them. I should have stayed longer, if it had not been for my parents wanting me at home.

In conclusion, please accept my very best respects, and wishes for your continued success.

Very truly yours,

THOS. KING, of Nairne.

HENRY WARD BEECHER insists that men shall not accumulate monstrous fortunes. The idea is an excellent one, but one that is by no means new. Quite a number of members of the carriage trade adopted it a great many years since. If you don't believe this, ask Mr. Fitz-Gerald!

IMPROVED REVERSIBLE SLEIGH, WITH PUPPY-DOG ATTACHMENT.

(See three Illustrations accompanying.)

DOWN EAST, Feb. 17, 1885.

EDITOR OF THE HUB—DEAR SIR: I was interested in the description of the invention of Mr. Torreyson, of Carson City, described in your February issue, an account of which I had already clipped from a local paper, intending to show it to you.

I herewith inclose drawings of a new and improved sleigh that I made some time ago, at the request of a gentleman (elderly, of course), who disliked to drive facing the wind. His kindness to his horse is not so marked as is that of Mr. Torreyson, but I have supplied a simple brake and horse-arrester combined, which will allow the horse to ride down hill.

I intend taking out a patent on this invention. Having very little experience in such matters, and not wishing to submit it to solicitors of patents, for fear of being swindled, I herewith mail the drawings to you, together with the specifications, which I have drawn up myself, and beg you will advise me whether they are properly made and whether the design is patentable.

My invention consists of a sleigh B (Fig. 1), provided with a movable seat J, which can be moved to J', and by the aid of the mirror C on the reverse of the upholstered back, turned up at the proper angle, enabling the driver D to guide the horse A by means of the reins F F passing through pulleys E E, substantially as and for the purpose described.

CLAIM 1: In an ordinary sleigh the hinged back, with a mirror C on the reverse side, enabling the driver D, on a windy day, to ride with his back to the wind.

CLAIM 2: In an ordinary sleigh the pulleys E E attached to the corner-posts of the same, allowing the reins F F attached to the horse A to



NEW-YORK CITY.

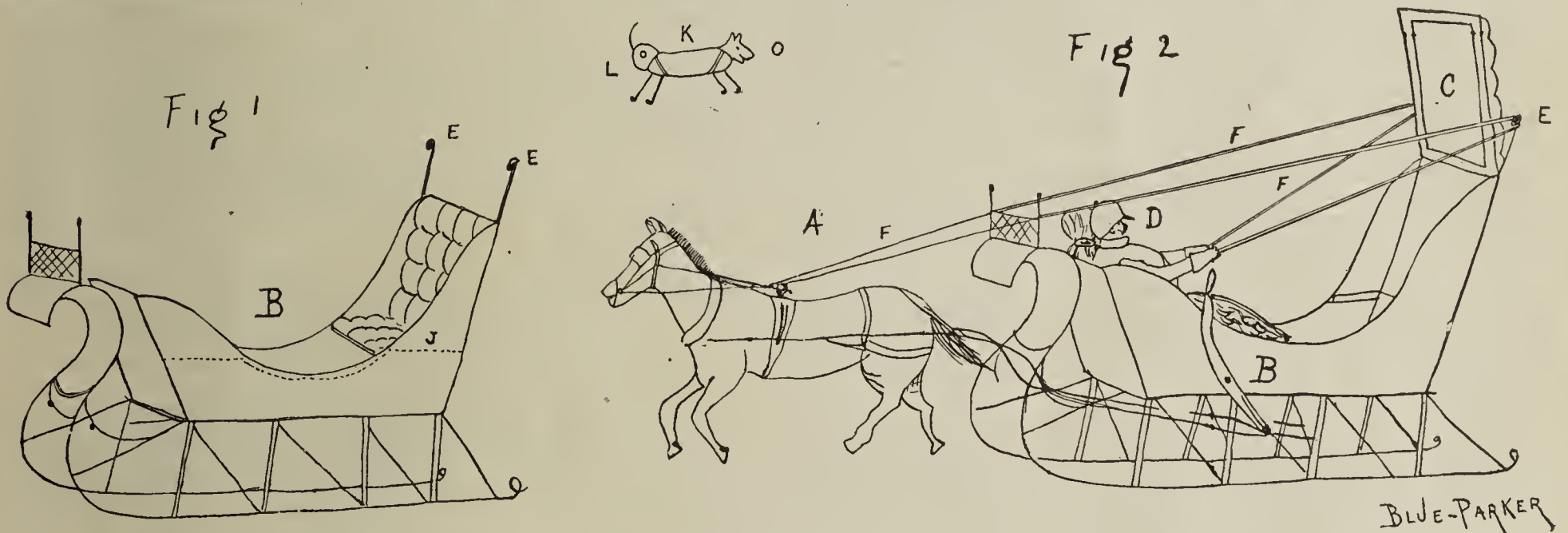
PERSONAL.—Mr. John W. Britton's health is steadily improving, and he is now able to attend regularly to business.

PERSONAL.—Mr. Lawson Valentine, who has been spending the winter at his stock farm at Mountainville, Orange Co., N. Y., has now returned to the city.

PERSONAL.—Mr. M. Guet, of Million, Guet & Co., left Paris on Nov. 27th, for an extended trip through America. He has already visited the West Indies and the New-Orleans Exhibition, and is now in Mexico. He will visit New-York before his return.

OFFICE WORK IN THE CARRIAGE SHOP.—An elaborate series of papers on the general subject of "How to Improve the Efficiency of the Carriage-maker's Office Department," may be expected to form a leading and very valuable feature of the coming volume of *The Hub*.

PERSONAL.—Mr. C. F. Hopwood, who has been living on varnish for a good many years—and it might be remarked that the diet seems to agree with him—is now representing Messrs. Hildreth, Templeton & Co., his district being New-York and New-Jersey. These are both old camping fields for



IMPROVED REVERSIBLE SLEIGH, WITH PUPPY-DOG ATTACHMENT.

(See description accompanying.)

pass through said pulleys, and to be held by the driver D, in a Scotch cap, substantially as specified.

CLAIM 3: In an ordinary sleigh the seat J, which, by pulling it with the hand, can be made to slide (automatically) to J', and not jump as is the case with most shifting seats.

CLAIM 4: In an ordinary sleigh the hinged back, with mirror C, in combination with the automatic slide-seat J and pulleys E E, driver D, horse A, and dog K, all working separately, substantially as set forth and for the purpose specified.

CLAIM 5: The dog K provided with a mask L, and a false head O placed over its tail, so that ladies and others who object to riding backward can look at said dog and thereby avoid the unpleasant sensations which the motion would otherwise impart.

CLAIM 6: The false head O and mask L, on the dog K are each to be placed on separately, and I wish it to be understood that the main point in all my claims is the movement of each part independent of the others. For instance, sliding forward the seat does not raise the upholstered mirror into its position or apply the bandages to either end of the dog; neither does it pass the reins through the pulleys or pull the cap over the driver's ears in cold weather.

Therefore, I claim that, in reversing this seat, there will be less friction, less profanity, and more enjoyment than in the ordinary course of similar devices whether in sleighs or carriages.

An early reply will oblige. Yours respectfully, BLUE-PARKER.

A SLEIGH 125 YEARS OLD.—Dr. William Ashmead, of Germantown, Pa., is the possessor of probably the oldest sleigh in the country, in point of continuous service. Dr. Ashmead, the present owner, who is 83 years old, says that long before he entered his teens the sleigh was an object of curiosity to him. In those days it was painted bright yellow, and the dasher was adorned with as many hues as the rainbow. The body of the sleigh is low, and double-seated. The front seat lacks a back, but the rear one makes up for it by having a particularly high and comfortable back. The dasher is separate from the body and fastened to the runners by stout iron rods. With the exception of new bolts and shoes, the sleigh is the same now as when originally made, and appears good for another half century's use. It was built nearly 125 years ago for George Benzell, the son of a Bishop in Switzerland, and at his death fell to his son and namesake, Dr. George Benzell, who used it in visiting his patients. The last-named died in 1832, and the sleigh was then bought by James Ashmead, father of the present owner, and has since remained for more than a half century in the Ashmead family.

our genial friend, and those interested in his wares will in due time probably have their attention called to the merits of the superfine coach and car varnishes which he now represents.

FRIENDLY RECOGNITION.—The *Southern Coach-Maker*, in its February number, very kindly says: "The Hub is entitled to the thanks and gratitude of not only the carriage fraternity, but that of all kindred business, for its earnest efforts to detect and expose swindling schemes and Munchausen receipts and inventions. It is a thankless task usually, and no one likes to do it, but *The Hub* does it, does it well, and does it effectually."

TRADE EMBARRASMENTS.—*Bradstreet's*, during the past thirty days, has reported the following embarrassments on the part of members of the carriage and accessory trades: D. W. Miller, The D. W. Miller Carriage Co., Cincinnati, O., assigned to Henry H. Gibson. On Dec. 12th he executed a trust deed to secure creditors for \$46,000. T. H. Sargent, carriage-maker, Millbrook, Ont., offers 20 cents. John Fuse & Co., wagon-makers, Bonfield, Ill., attached for \$493. Henry Slutter, Ambler, Pa., wheelwright, assigned. McIntire & Toudy, wagon-makers, Pittsburgh, Pa., in hands of constable. George E. Hope, wagon-maker, Willimantic, Conn., assigned. P. S. Reynolds, carriages, Crawfordsville, Ind., failed. W. C. Frampton, carriages, Pendleton, Ind., failed; liabilities about \$5,000. F. A. Brigham, sleigh manufacturer, Westboro, Mass., assigned. Wilder F. Brown, sleigh manufacturer, Westboro, Mass., failed; liabilities about \$13,000. E. Clapp & Son, carriages, Battle Creek, Mich., burnt out and failed. Goundry & Palmer, carriages, Watkins, N. Y., assigned. Garvin & Weiss, carriages, Claridon, O., failed; liabilities estimated at \$8,000. William Kynoch, carriage-maker, Galt, Ont., assigned. Isaac Whitlock, wagons, Janetville, Ont., reported left town. S. B. Partain, wagon-maker, Grimes' Landing, Cal.; previously reported failed, has returned and will pay in full. R. F. Randolph, carriage manufacturer, Shelbyville, Ky., assigned to W. P. Randolph and S. M. Long. John F. O'Neill, wagon-maker, Baltimore, Md., assigned. F. I. Brown, wagon-maker, Brookfield, Mass., attached. George P. Muldoon, wagon-maker, Omaha, Neb., gave chattel mortgage for \$800. Liabilities about \$1,000; no actual assets. F. A. Hogle, carriage-maker, Sherbrooke, P. Queb., assigned to H. A. Odell.

NEW-YORK STATE.

A HANDSOME LOOP.—The new loops, metal and leather, now put upon the market by the Cortland Box-Loop Co., of Cortland, N. Y., are especially well finished, tasteful and durable. The loops have received high praise from some of the largest shops.

T. CALLISTER, of Queens, Long Island, N. Y., reports his business during 1884 as having been "good;" and from present indications, he thinks he has reason to expect an even better trade during 1885. He has 8 fires and 40 men, and has been running full time, but has little or no stock now on hand.

OBITUARY.—Charles Downing, of Newburgh, N. Y., who died in that city on Jan. 18th last, was a half-brother of the late Lewis Downing, of Concord, N. H., and the last of 12 children: 7 sons and 5 daughters. An extended notice of Charles and Andrew J. Downing, contained in the Boston *Evening Transcript*, has been received by us, and read with interest.

FIRE damaged the axle-works of Messrs. Sheldon & Co., at Auburn, N. Y., on Sunday, Jan. 18th. In a letter since received from them, they say: "The fire was confined to our rolling mill. The building was totally destroyed and the machinery badly damaged. The insurance will not cover the loss, but just what it will be we cannot tell until the appraisers have completed their task. The ruins are covered with frequent snowstorms, but we hope to get the loss adjusted within a few days. No other part of our works was injured, and we are running along as usual. Fortunately, we had a good stock of iron made up ahead, and the fire will in no wise interfere with our business." In regard to the present outlook, they add: "We are happy to state that business has greatly improved with us within the last four to six weeks, and our orders at the present time are very heavy. If they keep up as well during the season, we can no longer complain of dull trade."

NEW-ENGLAND.

PERSONAL.—Mr. F. A. Babcock, of Amesbury, Mass., is now in Europe, working homeward on his around-the-world trip.

PERSONAL.—Mr. John Babcock, varnish manufacturer, of Boston, Mass., has been enjoying some fine shooting on the Gulf side of Florida.

DEATH.—The wife of Mr. Wm. P. Sargent, the well-known carriage manufacturer, of Boston, Mass., died at her home in that city on Feb. 2d, aged 62 years.

SLEIGHING IN BOSTON.—On Jan. 28th, every vehicle in Boston, Mass., excepting street-cars, was on runners. The snow was long deferred, and it came too late to help the sale of sleighs materially.

PERSONAL.—Mr. C. A. Willey, the representative of Messrs. Palmer & Doucet, of Merrimac, Mass., visited us on Feb. 17th, on his way to California. He expects to be absent about three months.

CATALOGUE.—In the new catalogue of Messrs. W. I. Atwood & Co., of Amesbury, Mass., will be found a very complete description of the Crown Prince hub-band, and a full line of carriage mountings, including the Sawyer top-prop, the patent on which is now exclusively owned by this firm.

PALMER & DOUCET, of Merrimac, Mass., report unusual lateness in the receipt of their spring orders, but these are now coming in, and they expect soon to put on their full force on full time. This firm now build all classes of heavy as well as medium work, and their trade extends to all parts of the country.

PRISON-MADE CARRIAGES AND HARNESS.—We learn that the carriage and harness departments at the State prison at Thomaston, Maine, made a good showing for the last year, reflecting credit on Warden Bean, who is an excellent business man, and upon Mr. Adams, superintendent of the carriage department.

F. W. E., of Taunton, Mass., asks the address of the makers of machine-cut plugs. Says he saw them advertised in *The Hub* long ago, but has forgotten the address. In reply we would say that Messrs. Porter & Wooster, of Boston, Mass., always keep a large supply of such plugs; and we beg to add that we think it would pay all who make them to let the trade know they are in the business.

CHANGE.—On Jan. 24th, Arthur N. Cooley succeeded to the business of S. M. Cooley, manufacturer of light carriages, at Pittsfield, Mass. He has what is probably the largest and best equipped carriage factory in Berkshire County; and, having managed the business exclusively for the past six years, during which time the trade has more than doubled, he can safely guarantee the best of work and satisfaction to old customers. In his new circular he says: "All of the old workmen, to whom, in a large measure, the high reputation of this factory for fine work has been due in the past, will remain; and I cheerfully invite a comparison between our work and that of the best city shops."

PERSONAL.—On July 18, 1883, Mr. Wm. T. McCullom, carriage body-maker, left New-Haven, Conn., where he had worked for a number of years with the firm of B. Manville & Co., for a trip to the Pacific States. After working in San Francisco about a year, he left that city last fall for Australia, where he has since obtained work in Melbourne, in the carriage factory of Mr. H. E. Colbath. Mr. McCullom has kindly furnished us with drawings of some of the representative Australian styles of carriages, for which we are much obliged. He states in his last letter, dated Dec. 28, 1884, that the climate of Australia is delightful, the month of December being one of the spring months; and that business is fair, with signs of further improvement.

HENRY HOOKER & CO., of New-Haven, have issued a spring card in the form of an elaborate steel engraving by Dempsey & Carroll, of New-York, representing one of their popular Spider Phaetons, in perspective, accompanied by their firm name, and the announcement: "We build pleasure carriages of all kinds for town and country use. Samples of proper styles for 1885 will be shown in our warerooms after February 15th." The card measures 5½ x 9 in., and the design and execution of the engraving are both admirable, with the single exception of the front gearing, which, as is usual with engravings made by those unacquainted with carriage drafting, has suffered painfully in its mechanical details. However, the general public, to which the firm appeal, will scarcely notice this defect; and the card as a whole may be looked upon as a decided success in the way of artistic advertising.

MIDDLE STATES.

A NEAT MEMORANDUM.—Morse, Williams & Co., of Philadelphia, have issued a pocket memorandum book, with alligator-leather cover, that is one of the neatest things in this line that has fallen under our notice.

CHANGE OF NAME.—Messrs. Clem & Morse, of Philadelphia, Pa., who, for years past, have built elevators of the most approved and satisfactory designs, have made a slight change in their firm name, although the partners remain the same. They are hereafter to be known as Morse, Williams & Co.

SLEIGHING IN WASHINGTON, D. C.—A letter from Washington, D. C., dated Feb. 17th, says: "We have been having a regular old-fashioned snowstorm. To-day it is pleasant, but cold; and everybody who has a sleigh, sled, or anything that can be put on runners, is out having a good time while the snow lasts."

WESTERN STATES.

PERSONAL.—Mr. Chas. P. Kimball, of Chicago, made a visit to the East last month; and was welcomed by many friends.

CHANGE OF TITLE.—On Jan. 1st, last, Mr. Chas. Rauch, carriage-builder, of Nos. 693 to 699 Pearl-st., Cleveland, O. (established in 1853), admitted in partnership Mr. Chas. E. J. Lang, under the title of Rauch & Lang.

ENCOURAGED.—The Canton Spring Co., Canton, O., say that, "if January, 1885, is any indication, business will be much improved over last year in volume."

PERSONAL.—Mr. Henry Timken, of St. Louis, has been visiting Florida, and on his way home will stop at the New-Orleans Exhibition, where he has a fine display in connection with the exhibit of the Abbott Buggy Co., of Chicago.

TOKEN OF RESPECT.—The Abbott Buggy Co., Chicago, Ill., write us that on Jan. 2d, the exhibitors at the New-Orleans Fair selected a Perry Road-cart, which they presented to Director-General E. A. Burke as token of respect.

MR. E. B. BORN, of Allegan, Mich., in a recent circular says: "Buy the Born Wagon, with 3½-inch wide tire, the only legal standard, that will save you one-quarter of your road tax, one-quarter of your horse-flesh, and will last longer than any four wagons made in or out of Michigan."

CHANGE OF FIRM.—On Dec. 15th last, the firm of The Buckeye Buggy Co., of Columbus, O., dissolved partnership by mutual consent, Mr. H. K. Tuller retiring; and Messrs. J. R. Hughes, H. R. Hislop, A. L. Willson, and F. L. Hughes now carry on the business under the same title as before.

NEXT!—That lively Austin, Tomlinson & Webster Mfg. Co., of Jackson, Mich., found time on Tuesday afternoon, Jan. 20th, to give a banquet to their employés. If the eatables were half as appetizing as the bill-of-fare which they have kindly sent us, good digestion must certainly have waited upon all present.

FIRE.—At 8 o'clock, on the evening of Tuesday, Feb. 10th, a fire started in the paint-shop of Fish Brothers' wagon works, at Racine, Wis., run by J. I. Case, receiver. The sheds containing lumber, gears, and manufactured wagons were all burned. The insurance on the whole plant was \$200,000, and the loss sustained is estimated at about \$60,000.

FIVE FEET OF SNOW.—Mr. E. B. Born, carriage-maker, of Allegan, Mich., who sustained damage by a flood on Dec. 31st, last, writes as follows under date of Feb. 14th: "We have now five feet of snow on a level, which may, I fear, cause an even worse flood, during the coming spring, than that of last December." We hope not!

THE BARRY GEAR.—Mr. Barry, of Valparaiso, Ind., started a few years ago, in a modest way, to call the attention of the trade to his gear, and from small beginnings his trade has steadily grown. The gear has proved one of the best of advertisements in every new section it has penetrated, and to-day it is widely and favorably known, and the sales are constantly on the increase.

RUSHING.—Our report from Valparaiso, Ind., the home of the justly celebrated Barry Platform Gear, seems to indicate a very prosperous state of affairs. Mr. Barry's sales have been so large that he is enabled to offer better gears than ever at lower prices. He has authorized Mr. Robert Lowrie, of Gananoque, Ont., to manufacture these gears in Canada. Our Canadian friends will please take notice.

LARGE FAILURE.—D. W. Miller, proprietor of the D. W. Miller Carriage Co., Cincinnati, O., assigned on Feb. 6th to Henry H. Gibson. Assets estimated at \$100,000; and liabilities, \$130,000. Mr. Miller had been embarrassed by the building of his large works on East Fifth-st., and in December last he conveyed a portion of his property to W. H. Taft to secure creditors holding nearly \$50,000 claims.

PERSONAL.—Mr. Geo. P. Gifford, of Chicago, late publisher of the *Western Carriage, Harness and Wagon Journal*, has disposed of his interest in that publication, and will hereafter confine his attention to commercial agency work, with his office in Chicago. Members of the carriage and accessory trades desiring a responsible collector for claims located in the West, will do well to consult Mr. Gifford, who has had long experience and possesses superior facilities.

THE EGAN SANDER.—The Egan Company, of Cincinnati, O., write us that they are in almost daily receipt of letters commending the practical workings of their new Double Drum sandpapering Machine, among the latest and most emphatic of which is the following from a prominent manufacturer: "Detroit, Mich., Jan. 16, '85. The Egan Sander we bought of you does its work simply perfectly. We are using a 'Boss' Sander also, and consider that it should not be compared to the Egan in any respect whatever. We could not say enough in praise of the Egan machine. Very truly yours, (signed) M. J. MURPHY & Co., M. J. Murphy, Pres. and Treas."

FIRE.—In a special circular issued by the Huston Spring Wagon Co., of Columbus, O., under date of Feb. 1st, they say: "We beg to inform you of the entire destruction of our works by fire, on Friday night, Jan. 16th. We will commence at once to rebuild the works, and add new and improved machinery. Our large stock of first quality and thoroughly seasoned lumber was not destroyed, and we are already at work in temporary quarters, making bodies and gears, and getting them into the paint-shop, while our permanent buildings are being erected. We expect to be ready to make shipments of most of our styles by about the 15th of April, especially of our new three-spring and half-platform-spring wagons. We trust that our customers will favor us with orders for shipment for about the above date."

SOUTHERN STATES.

THE NEW-ORLEANS EXHIBITION is reported such a very dead failure by all of our correspondents who have visited it, that we refrain from publishing any detailed report of it, for the present at least.

"THE CENTURY'S" WAR PAPERS continue to render notable that popular magazine, which, we are happy to notice, has attained to the extraordinary monthly circulation of 190,000 copies. In its March number, Col. John Taylor Wood, the senior surviving officer of the *Merrimac*, describes the combat with the *Monitor* as seen from within the *Merrimac*, and entitles his paper "The First Fight of Iron-Clads." This is followed by a graphic account of what took place "In the *Monitor* Turret," by late Commander S. D. Greene, who commanded in the turret, and relieved Admiral Worden when the latter was disabled in the pilot-house.

FOREIGN.

J. W. BROWN & Co., carriage-builders, of Kingston, Ont., whose inquiry "How to Box Carriages for Shipment" is responded to on page 831, have sent us the following trade report under date of Feb. 5th. They say: "We would add that business is fair, as well as collections, with plenty of orders ahead for spring work. Sleighting is good."

TRADE REPORT FROM BIRMINGHAM, ENG.—Messrs. Frederic Selby & Co., carriage axletree and spring manufacturers, Longmore-st. Works, Birmingham, Eng., write as follows under date of Feb. 1st: "Business during the last three months has somewhat slackened, as usual at this time of year; and, so far as our experience extends, orders for new carriages have been scarce and closely competed for, and money tight. The present month opens with fair promise, and we now anticipate an average spring season."

WHERE TO BUY.

Leading Houses Supplying Carriage Materials,

INCLUDING

A Classified Index to all Announcements appearing in this issue of "The Hub," the figures following the firm name indicating the page that contains the advertisement.

ALL KINDS OF CARRIAGE GOODS.

- Conrad B. Day & Co., Philadelphia, Pa... 850
Dealers in Coach-makers' Materials.
English & Mersick, New-Haven, Ct..... 870
Manufacturers of and Dealers in Carriage Hardware. Specialty: Brewster Gears.
Jno. A. Gifford, 17 Park Place, New-York. 863
Kemper Bros., Cincinnati, O..... 850
Ten Eick & Kent, 1553 Broadway, New-York 850

AXLES.

- R. Cook & Sons, Winsted, Conn..... 852
Carriage and Wagon Axles.
Dalzell & Co., So. Egremont, Mass. 852
Improved Collinge Axle.
Eureka Axle Co., Lynn, Mass..... 852
Eureka Axle.
Goodyear & Ives, New-Haven, Ct..... 850
Carriage Axles. Specialty: Steel's patent Sand-box Axle.
A. D. Howe & Co., Coshocton, O.....
Self Lubricating Axle.
Liggett Spring & Axle Co. (Limited), Pittsburgh, Pa..... 857
Fine and Medium Axles. (See Also Springs.)
Sheldon & Co., Auburn, N. Y..... 842
Axles.
A. E. Smith & Warner Axle Co., Wilmington, Del..... 852
Smith, Carswell and Vandenbraak Axles.

BODIES.

- F. T. Clymer, Wilmington, Del..... 861
Carriage Bodies and Carriage Parts.
The Dann Bros. & Co., New-Haven, Conn. 865
Carriage Bodies and Bent Woodwork.
Jas. Driscoll & Sons Co., Springfield, O.... 849
Carriage Bodies for the Trade.
Jackson Phaeton Body and Carriage Co., Jackson, Mich..... 843
Pat. Bent Sill Phaeton and Carriage Bodies.
Miller Carriage Co., Bellefontaine, O..... 848
Specialty: Eureka Bodies.

BOLTS.

- Norwich Bolt Works, Norwich, Conn..... 863
Genuine Norway Iron Bolts.
T. Skelly, Philadelphia, Pa..... 841
Philadelphia Bolt Works.

CARRIAGES FOR THE TRADE.

- Abbott Buggy Co., Chicago, Ill..... 842
Timken Spring Buggies and Perry Road Carts.
D. A. Altick & Sons, Lancaster, Pa..... 861
Phaetons and light work.
F. A. Babcock & Co., Amesbury, Mass.... 855
Four and Six-Seat Wagons.
S. R. Bailey, Amesbury, Mass..... 854
Sleighs in the Wood and Iron.
Wm. Lockwood, Madrid, N. Y..... 844
Buckboard Wagon.
Youngstown Carriage and Wagon Co., Youngstown, O..... 857
Buckboards and Buggies.

GLASS.

- Vanhorne, Griffen & Co., 131 to 137 Franklin-st., New-York..... 850
Bent and Beveled Glass. Importers of French Sheet and Plate Glass.

GLUE, CURLED HAIR, Etc.

- Baeder, Adamson & Co., Philadelphia, Pa. 844
(Branches: New-York, Boston and Chicago.)
Specially prepared Carriage Glue, Flint and Glass Paper, Curled Hair, Moss, Excelsior, etc.
Japanese Hair Mfg. Co., Jersey City, N. J. 862
Japanese Hair and Japanese Moss.

HARDWARE (CARRIAGE.)

- Cincinnati Screw and Tap Co., Cincinnati, O. 842
Drills, Screws, Taps, etc.
The E. D. Clapp Mfg. Co., Auburn, N. Y. 853
Carriage Hardware of every description. Specialty: Lamb's Seat Fastener.

- C. Cowles & Co., New-Haven, Ct..... 866
Carriage Hardware and Patented Specialties. (See also Lamps and Mountings.)

- Crandall Stone & Co., Binghamton, N. Y. 847
Carriage Hardware.

- The Dalzell & Ives Wrought Box Co., So. Egremont, Mass..... 849
The Dalzell & Ives Wrought Box.

- W. M. Farr, Dowagiac, Mich..... 865
Common Sense Sand and Mud Band.

- M. T. Gleeson, Columbus, O..... 861
Fine Carriage Mountings.

- S. D. Kimbark, Chicago, Ill..... 844
Carriage, Wagon and Heavy Hardware, etc.

- Metal Stamping Co., New-York..... 845
Carriage Trimmers' Hardware and Patented Novelties. (See also Mountings, and Trimmers' Materials.)

- Queen City Forging Co., Cincinnati, O.... 848
Carriage Hardware.

- Rubber Step Mfg. Co., Boston, Mass..... 860
The Rubber Covered Carriage Step.

- H. D. Smith & Co., Plantsville, Ct.....
.....4th cover page
The "Encircled S" brand of Fine Carriage Forgings.

- H. M. Strieby & Co., Newark, N. J..... 856
Fine Forgings. Specialty: Timken Irons and Side-bar Steps.

- Topliff & Ely, Elyria, Ohio..... 849
Tubular Bow Sockets for Top Buggies, and Connecting Rods for Side-spring Buggies. Seat-risers.

- Walter & Miller, Fremont, Ohio..... 851
Seat Rails, Forging to order, etc.

- White Mfg. Co., New-Haven, Ct..... 862
Pole Crabs. (See Lamps.)

IRON AND STEEL.

- C. B. Clarke, St. Louis, Mo..... 856
Silvester Patent Tire.

- Wm. & Harvey Rowland, Frankford, Philadelphia 858
Iron and Steel. (See also Springs.)

- Thomas Turton & Sons, Sheffield, Eng., and 40 Kilby-st., Boston, Mass..... 865
Celebrated *Greaves'* Spring Steel and Best Crucible Cast Spring Steel.

LAMPS.

- C. Cowles & Co., New-Haven, Ct..... 866
(See also Hardware and Mountings.)

- White Mfg. Co., Bridgeport, Ct..... 862

LEATHER.

- Evans Artificial Leather Co., Boston, Mass. 853
A Substitute for Leather.

- T. P. Howell & Co., Newark, N. J..... 860
"Lion" Brand, Patent and Enameled.
New-York Salesroom: 77 Beekman-st.

MACHINERY.

- Abbott & Co., Hudson, Mich..... 862
Little Giant Hub-Borer.

- W. F. & John Barnes, Rockford, Ill..... 846
Foot and Steam Power Machinery.

- Bender Bros., Columbia, Pa..... 869
Fan Blowers.

- Bradley & Co., Syracuse, N. Y..... 857
Power Cushioned Hammer, and Heating Forge for hard coal or coke.

- Capital City Mach. Works, Columbus, O... 865
Standish Imp. Foot Power Hammer or Oliver.

- The Egan Co., Cincinnati, O..... 866
Carriage Wood-working Machinery.

- J. A. Fay & Co., Cincinnati, O..... 853
Woodworking Machinery.

- George W. Heartley, Toledo, O..... 865
Little Giant Axle Box Press.

- H. A. Moyer, Syracuse, N. Y..... 855
Hub Boring and Boxing Machine.

- C. F. Pettingell & Co., Amesbury, Mass... 862
Full line of Patented Carriage and Wheel Machinery.

- Wiley & Russell Mfg. Co., Greenfield, Mass.2d cover page
Tire and Bolt Cutters. (See also Tools.)

OMNIBUSES AND CARS.

- John Stephenson Co. (Limited), New-York, 842

PAINTS and PAINTERS' MATERIALS.

- Billings, Taylor & Co., Cleveland, O..... 860
Coach and Car Colors and Varnishes.

- F. W. Devoe & Co., New-York...3d cover page
Carriage, Coach and Car Colors.

- Felton, Rau & Sibley, Philadelphia, Pa.... 860
Ivory Drop Black.

- Miles Bros. & Co., New-York..... 861
Brushes of all kinds. Specialty: Coach Painters' and Varnishers' Brushes.

- Chas. Moser & Co., Cincinnati, O..... 852

- Palm Bros. & Co., Cincinnati, O..... 865
Transfer Ornaments.

- Palm & Fechteler, New-York..... 848
Transfer Ornaments.

- Chas. D. Thum, Philadelphia, Pa..... 848
Coach Painters' Brushes. Specialty: The Thum Half Elastic Varnish Brush.

- Valentine & Company, New-York..... 839
Fine Coach Varnishes and Colors.

PUBLISHERS.

- "The Hub," New-York City..... 853, 857

SPRINGS AND GEARS.

- M. Barry, Valparaiso, Ind..... 866
Platform Gears.

- Bridgeport Spring Co., Bridgeport, Ct..... 863
Fine Carriage Springs. Saladee Crescent and Timken Cross-springs.

- Canton Spring Co., Canton, O..... 870
Carriage, Wagon and Seat Springs.

- Dexter Spring Co., Hulton, Pa..... 858
The Dexter "Queen" Side Springs, Hamlin & Ludlow Gears.

- Hartford Spring and Axle Co., Norfolk, Conn..... 842
Hartford Full Collinge Axle.

- Henry Spring Co., Winsted, Conn..... 870
The Henry Single-leaf Rib Spring.

- Kalamazoo Spring and Axle Co., Kalamazoo, Mich 843
Carriage, Wagon and Seat Springs.

- Liggett Spring and Axle Co. (Limited), Pittsburgh, Pa..... 857
Fine Springs. Licensed Makers of Brewster and Groot Springs. (See also Axles.)

- Mulholland Spring Co., Dunkirk, N. Y.... 869
Springs and Gears.

- National Vehicle Co., Racine, Wis..... 852
Shaw's Patent Gearing.

- T. D. Olin & Co., Cincinnati, O..... 847
The Olin Springs.

- Rice Spring & Carriage Co., Pittston, Pa.. 845
Rice Carriage Springs.

- C. W. Saladee, Birmingham, Conn..... 856
"Duplex Springs."

- Wm. & Harvey Rowland, Frankford, Philadelphia, Pa..... 858
Fine Springs from Swedish Stock. Also Iron and Steel.

- Spring Perch Co., Bridgeport, Ct..... 851
Side-Bar Wagon Springs a specialty.

- The Edward Storm Spring Co., Poughkeepsie, N. Y. 854
Storm Side-bar Springs, and Bodies and Gears.

- Henry Timken, St. Louis, Mo.....851, 859
The Timken Cross-Spring.

- Tomlinson Spring Co., Newark, N. J..... 850
Fine Springs and Axles.

- R. Tomlinson Spring and Axle Works, Bridgeport, Ct..... 852
Springs: Specialty, The Hamlin.

- Tuthill Spring Co., Chicago, Ill..... 848
Fine Springs, including Timken, Brewster, Soule, and other patent springs.

- C. R. & J. C. Wilson, Detroit, Mich..... 858
The Wilson Side-bar Cross-spring.

- Wisconsin Wagon Co., Madison, Wis..... 863
The Hanson & Mack Patented Gears.

TOOLS.

- Chambers, Bros. & Co., Philadelphia, Pa. 844
Bolt and Rivet Clippers.
Cincinnati Screw and Tap Co., Cincinnati, O. 842
J. W. Manneer, Rochester, N. Y. 857
Manneer's Bench Drill.
Porter & Wooster, Boston, Mass. 844
"Easy" Bolt Clipper.
Wiley & Russell Mfg. Co., Greenfield, Mass.
.....2d cover page
Tire and Bolt Cutters. (See also Machinery.)

TRIMMERS' MATERIALS.

- American Tack Co., Fairhaven, Mass. 843
Swedes' Iron Trimmers' Tacks, Japanned and
Silver Lining Nails and Tufting Buttons. (N.
Y. Salesroom, 116 Chambers-st., New-York.)
Ashtabula Carriage Bow Co., Ashtabula, O. 860
Leather Covered Bow.
W. I. Atwood & Co., Amesbury, Mass. 854
Carriage Mountings.
Bridgeport Coach-Lace Co., Bridgeport,
Conn. 850
Coach Laces and Trimmings.
Cortland Box-Loop Co., Cortland, N. Y. 866
Metal Buckle Loops.
E. & J. C. Covert, Farmer Village, N. Y. 841
Neck-Yokes.
Crandall, Stone & Co., Binghamton, N. Y. 847
Carriage Trimmings.
Durham & Wooster, New-Haven, Conn. 841
English Canopies.
English & Mersick, New-Haven, Conn. 870
Carriage Broadcloths, Canopies and Canopy Top
Fringes.
Elliott Dash Stitching Machine Co., Bos-
ton, Mass. 854
Excelsior Top Co., Cortland, N. Y. 851
Carriage Tops.
Harris Button-Hole Co., Lim., New-York. 861
Pat. Crimped Leather Knob Eyelets.
Japanese Hair Mfg. Co., Jersey City, N. J. 862
Japanese Hair and Japanese Moss.
Chas. P. Ketterer, New-York. 842
Wagon Curtain Fastener.
C. Z. Kroh & Bro., Toledo, O. 846
Tops, Cushions, Backs, Falls, etc.
Metal Stamping Co., 134 and 136 Duane-st.,
New-York. 845
Patent Buckle Loops, Back Lights, etc.
Parker Carriage Goods Co., Cincinnati, O. 843
Carriage Trimmings in great variety.
F. J. Schmid, New-York. 862
Hand-made Coach Laces, and all kinds of Trim-
ming Materials.
E. W. Scott, Wauregan, Conn. 863
Whip Sockets.
A. S. Sherwood, 1546 Broadway, N. Y. 844, 855
Carriage Materials.
Ten Eick & Kent, New-York City. 850
Carriage and Sleigh Materials of every descrip-
tion.
Topliff & Ely. 849
See Hardware.

VARNISHES, JAPANS, ETC.

- Moses Bigelow & Co., Newark, N. J. 860
.....3d cover page
Established 1845. Fine Coach and Car Varnish
Manufacturers.
J. Babcock & Co., Boston, Mass. 2d cover page
Billings, Taylor & Co., Cleveland, O. 860
Coach and Car Colors and Varnishes.
F. W. Devoe & Co., New-York. 3d cover page.
Carriage, Coach and Car Colors.
Felton, Rau & Sibley, Philadelphia, Pa. 860
Wm. Harland & Son, Merton, Surrey,
England. 2d cover page
On sale in America by first-class dealers in prin-
cipal cities.
Hildreth, Templeton & Co., New-York. 3d cover page.
Superfine Coach and Car Varnishes.
Moller & Schumann, Brooklyn, N. Y. 865
.....2d cover page
O'Brien Varnish Works, South Bend, Ind. 865
Parrott Varnish Co., Bridgeport, Ct. 2d cover page
Pratt & Lambert, New-York City. 841
C. C. Reed & Co., New-York City. 846
E. Smith & Co., New-York City. 3d cov. page
Stimson & Co., 149 Milk-st., Boston, Mass. 847
Coach and Car Varnishes.
Valentine & Company, New-York. 839
Fine Coach Varnishes and Colors.

WHEELS AND WHEEL STOCK.

- C. C. Anderson & Co., Galion, O. 847
Fine Sarven Patent, Band Hub and Plain Wheels.
Bollenbacher & Sons, Bloomington, Ind. 865
Spokes.
S. N. Brown & Co., Dayton, O. 855, 867
Superior Wheels, Hubs, Spokes, etc.
Crane & McMahon, 38 Park Place, N. Y. 850
(Salesroom, New-York.) Spokes, Rims, etc.,
and Hickory, Oak and Ash Plank.
Howard M. DuBois, Philadelphia, Pa. 851
Wheels, Hubs, Spokes, etc.
A. M. Eames & Co., So. Framingham,
Mass. 857
Fine Carriage Wheels.
Hagerstown Spoke Works, Hagerstown, Md. 844
Hoopes, Bro. & Darlington, Limited, West
Chester, Pa. 854
Warner Patent and Plain Wheels. Specialty:
Thorough Seasoning and Perfect Work.

- J. H. Hoover, Ossian, Ind. 866
White Elm Hub Blocks.
Phineas Jones & Co., Newark, N. J. 864
Patent and Plain Wheels, Spokes, Hubs, etc.
Lambertville Spoke Mfg. Co., Lambertville,
N. J. 850
Wheels, Wheel Stock, Shafts, Hubs, Poles,
Whiffletrees, Plank, etc.
Philip Lebzelter, & Co., Lim., Lancaster, Pa. 850
Fine Wheels and Wheel Material.
New-York Sarven Wheel Co., New-York. 846
Branch of Royer Wheel Co., Cincinnati, O.,
which see.
Rochester Wheel Co., Rochester, N. Y. 864
Wheels, Hubs, Spokes, Rims.
Royer Wheel Co., Cincinnati, O. 846
(Branch House, New-York Sarven Wheel Co.)
Improved Sarven Wheel with Rouse Hub
Bands; also Stoddard Patent and Plain Wheels.
Skinner & Scott, Lynn, Mass. 857
Wheels.
Wales Wheel Co., Bridgeport, Conn. 864
Winch & Sons, Bryant, Ind. 842
White Elm Hub Blocks.

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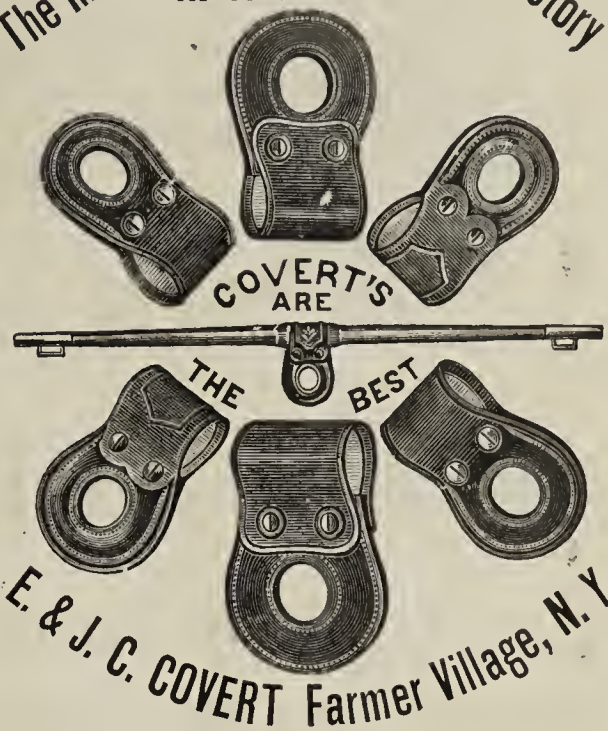
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Tire and Spring Bolts, and all the various styles of
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IT IS SUPERIOR TO JAPANS.

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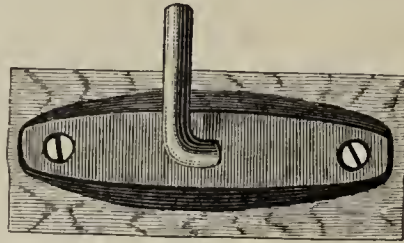
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Patent Wagon Curtain Fastener

Patented May 25, 1875.



Fastener arranged to receive Curtain.

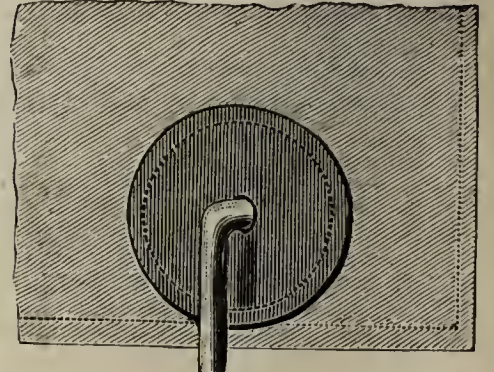
ECONOMICAL, DURABLE, SECURE,
SIMPLE,**NOISELESS.**

EASILY ATTACHED AND OPERATED.

Address CHAS. P. KETTERER, Express Wagon Manufacturer,

SEND FOR CIRCULAR.

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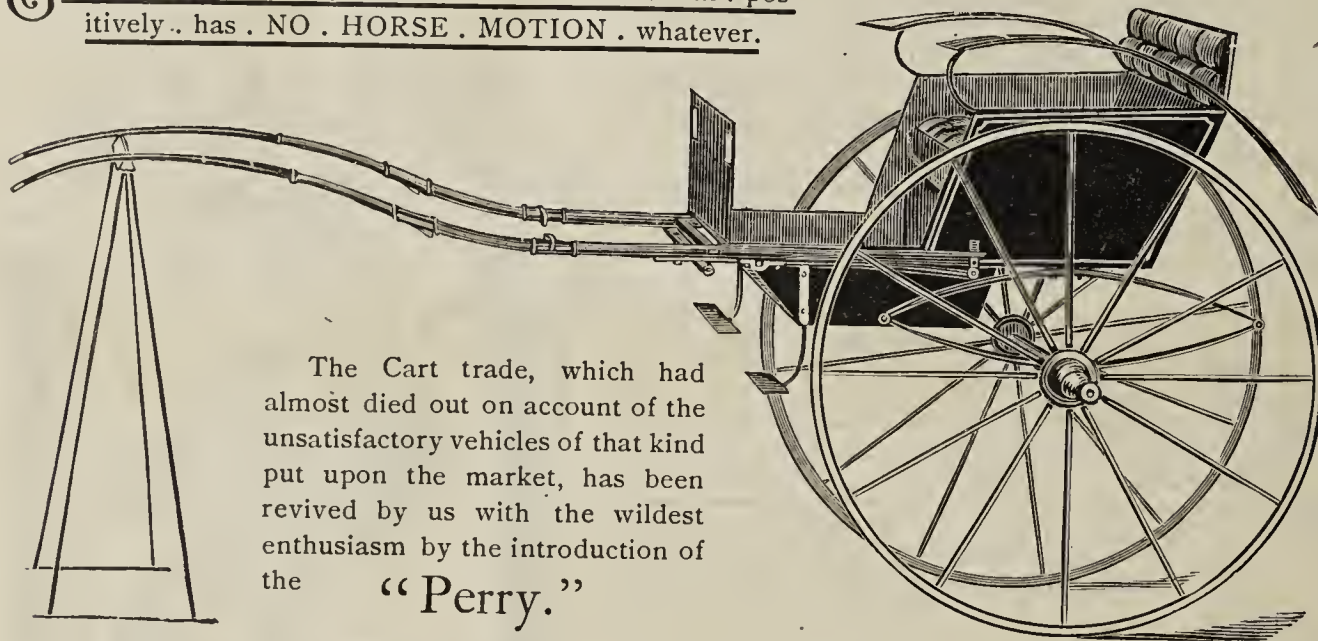
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THE first and only Two-wheeler made that positively has NO HORSE MOTION whatever.



The Cart trade, which had almost died out on account of the unsatisfactory vehicles of that kind put upon the market, has been revived by us with the wildest enthusiasm by the introduction of the "Perry."

THE first and only Cart made that gives the Horse no Cart Motion, and does not chafe its back.

A vehicle that rides as steady with two wheels as a Buggy with four, and draws one-third easier.

A Cart that really rides easier than a Buggy, more comfortable than a Phaeton, and that is Revolutionizing the Trade!

We own all the Perry patents for the United States; and in order to more fully supply the demand for this popular Cart, we will sell the attachments and parts in white to carriage manufacturers to put up Carts for their retail trade, where we have no established agent and it does not interfere with our wholesale trade.

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New Circulars on Milling Machines and Universal Head (Patent pending).

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Special

Machines,

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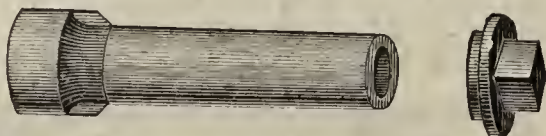
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Made from best Burden's Iron or Bessemer Steel.

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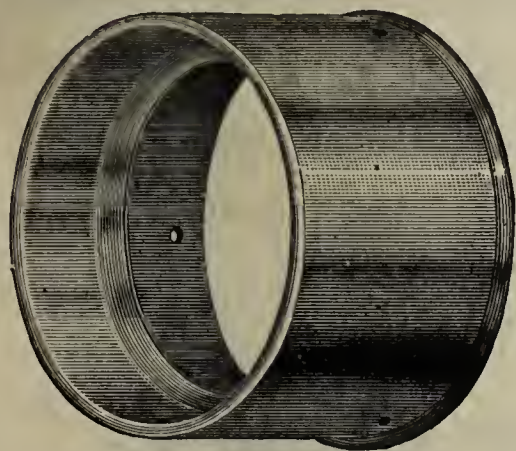
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A. S. PARKER, Pres; for six years Gen'l Agent CRANDAL, STONE & Co.
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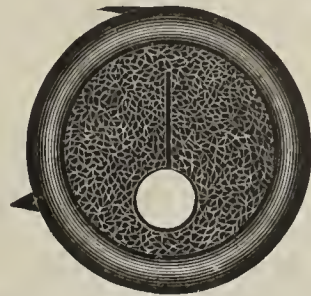
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Knob Patch and Fastener.

Send for Samples and Prices.

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MANUFACTURERS OF

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Titus's Pat. Bent Sill Phaeton Body.

Acknowledged to be the best Phaeton Body ever put on the market.

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Estimates on this class of work given on application, and satisfaction in material and workmanship guaranteed.



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Send for Catalogue and Terms.

ALL WORK WARRANTED.

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Lining and Saddle Nails.

Upholsters', Gimp, Lace, Trimmers', Carpet Tacks (Blued, Tinned and Coppered.)

Silvered, Japanned and Colored Lining and Saddle Nails.

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Tufting Buttons, with every eye soldered to its back, which makes the strongest button in the market. (Patented June 28th, 1881.)

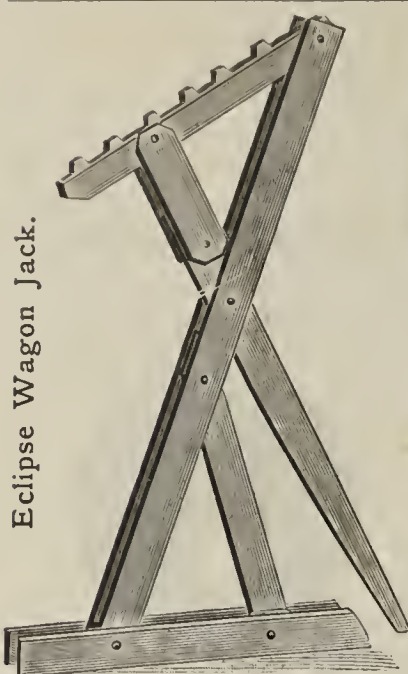
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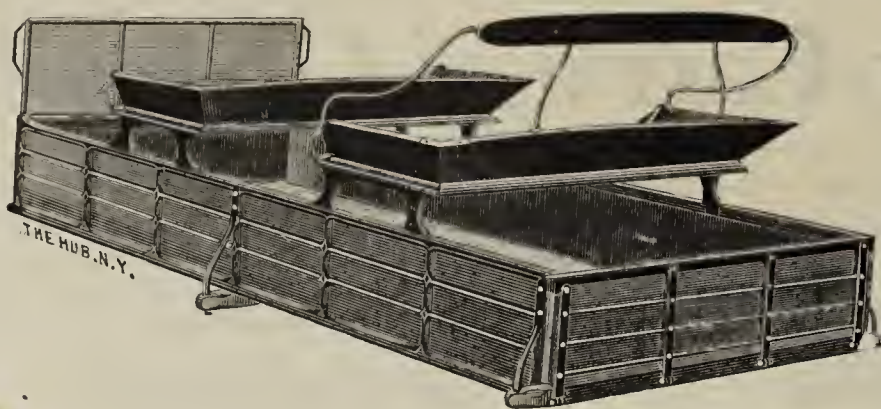
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Eclipse Wagon Jack.



No. 6. Improved Ironed Body, Three Panel.

Send for descriptive circular and prices on above and other styles of same make.

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Bodies, Wagon Jacks, Wagon Wood Stock.

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Iron, Steel, Nails,

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Especially attention paid to manufacturing Glues for Carriage and outside work.
 Quick-setting and not affected by dampness.

Guigon's Coach Painters' Memorandum Tags.

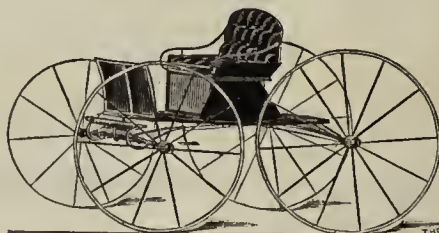
One side is blanked for memoranda between the painter and the owner, the other for data relating to the job as it progresses.

Cost Less than One-half Cent each Job!

They prevent mistakes, save time, money and vexation; can be placed on file for future reference. It pays every Carriage Painter to use them. Mailed on receipt of price, as follows:

1,000 Tags, with 5 doz. Hangers and 2 Files	...	\$3 50
500 " " " " " "	2 " "	2 00
200 " " " " " "	1 File	1 25
100 " " " " " "	1 " "	75

Extra Hangers, per doz., 10c.; 3 doz., 25c. Extra Files, each 10c.; 3 ditto, 25c.

The Hangers do not wear out, and can be used indefinitely. (Patent applied for.)
Address F. P. GUIGON, Franklin, Mass.

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PATENT

BUCKBOARD
WAGON.

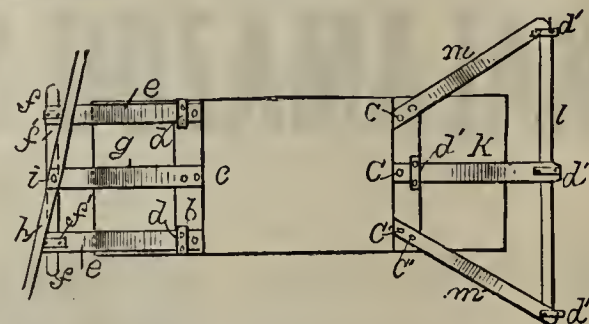
PATENTED IN U. S.,
 March 11, 1884.

PATENTED IN CANADA,
 Aug. 16, 1884.

MANUFACTURED BY

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1546 BROADWAY, Near 46th-st.,

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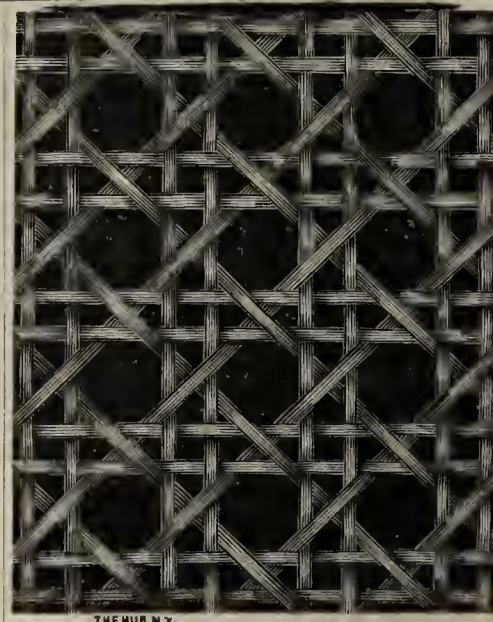
Per Doz.
 Road Wag'n, 6 in. \$3 50
 Buggy, 6½ inches, 3 50
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 Packed ½ doz. in a box.

Patent-Leather Sleigh
 Sockets, 12 inches.
 Special lengths to order.

Beaded or Plain
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BARRY'S PATENT IMPROVED CANEWORK.
 Made entirely of paint and cane color. Paneled Pieces,
 48 x 20, \$6.50 per piece. Seat Pieces (in two pieces),
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 "EASY" BOLT CLIPPER
 IS THE BEST.

New-York, 11 January, 1882.

MESSRS. PORTER & WOOSTER—Gents: Yours of 10th
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 your "EASY" BOLT CLIPPER, and find it indispensable in
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Yours truly,

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Write for New Circular. PORTER & WOOSTER,
 66 & 68 Beverly-st., Boston, Mass.

Capacity, 1,500,000 per annum.

Established 1870.

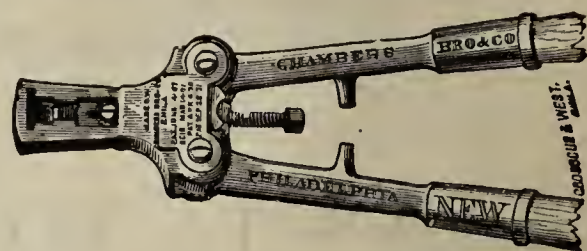
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Hagerstown Spoke Works,

MANUFACTURERS OF

All kinds of Foreign and Domestic
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Bolt and Rivet Clippers.

IN PRACTICAL USE OVER TEN YEARS.

For cutting off the ends of bolts and rivets, on car
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Send for a Circular and Price-list.

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Knob Patch Fastener and Ring,
For heavy Leather Curtains.

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METALLIC

BUCKLE LOOPS.

Durable, of Simple Construction
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METALLIC

Wagon Curtain Patches,
with Screw-eyes or Staples.

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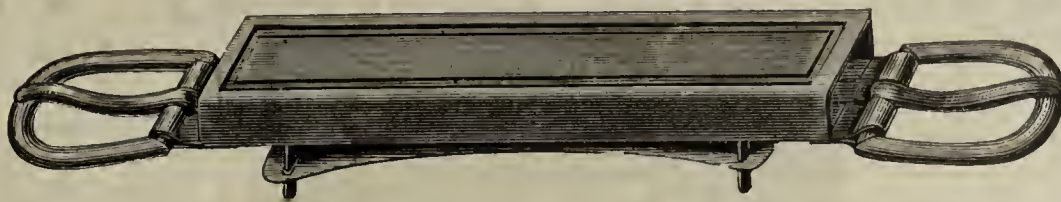
Carriage Curtain Lights.
Full Assortment.

CARRIAGE KNOBS.

Upwards of 20 Styles and Sizes.
Japanned or Plated.

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Metallic Buckle Loops.



No. 1.

Loop with two Buckles. Size of Loop, $\frac{3}{8} \times 2\frac{1}{2}$ inches.

AT the beginning of a new season we beg to invite the attention of Carriage Manufacturers to our Specialties of Trimmings and Hardware.

These goods enjoy a deserved reputation for practicability and uniform standard quality, established during a successful period of ten years, and by careful attention to the requirements of the Trade.

Our specialties are all distinctly marked and labeled with our firm name. Dealers and consumers will please to notice this particularly so that they may receive the genuine and correct articles.

All orders executed with usual dispatch, and all inquiries answered promptly and fully.

Metal Stamping Company,

Manufacturers of Carriage Trimmings and Hardware,

134 and 136 Duane-street,

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Our Specialties.

AIR-CUSHIONED

Rubber Top Prop Blocks.

LEATHER LOOPS.

With or without Metal Fastener.

STAR BUCKLE LOOPS.

An entirely new article, combining
appearance of leather and dur-
ability of metal loop.

Talcott's Elastic Button-hole.

KNOB EYELETS.

WASHERS.

Axle, Top Prop and Prop Block.

TUFTING BUTTONS.

Japanned, Cloth or Leather cov-
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Metallic Top-Stays.

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Rice's Easy-Riding Carriage Springs

are now absolutely the
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Hundreds of Carriage-
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who use them are de-
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Send for Descriptive
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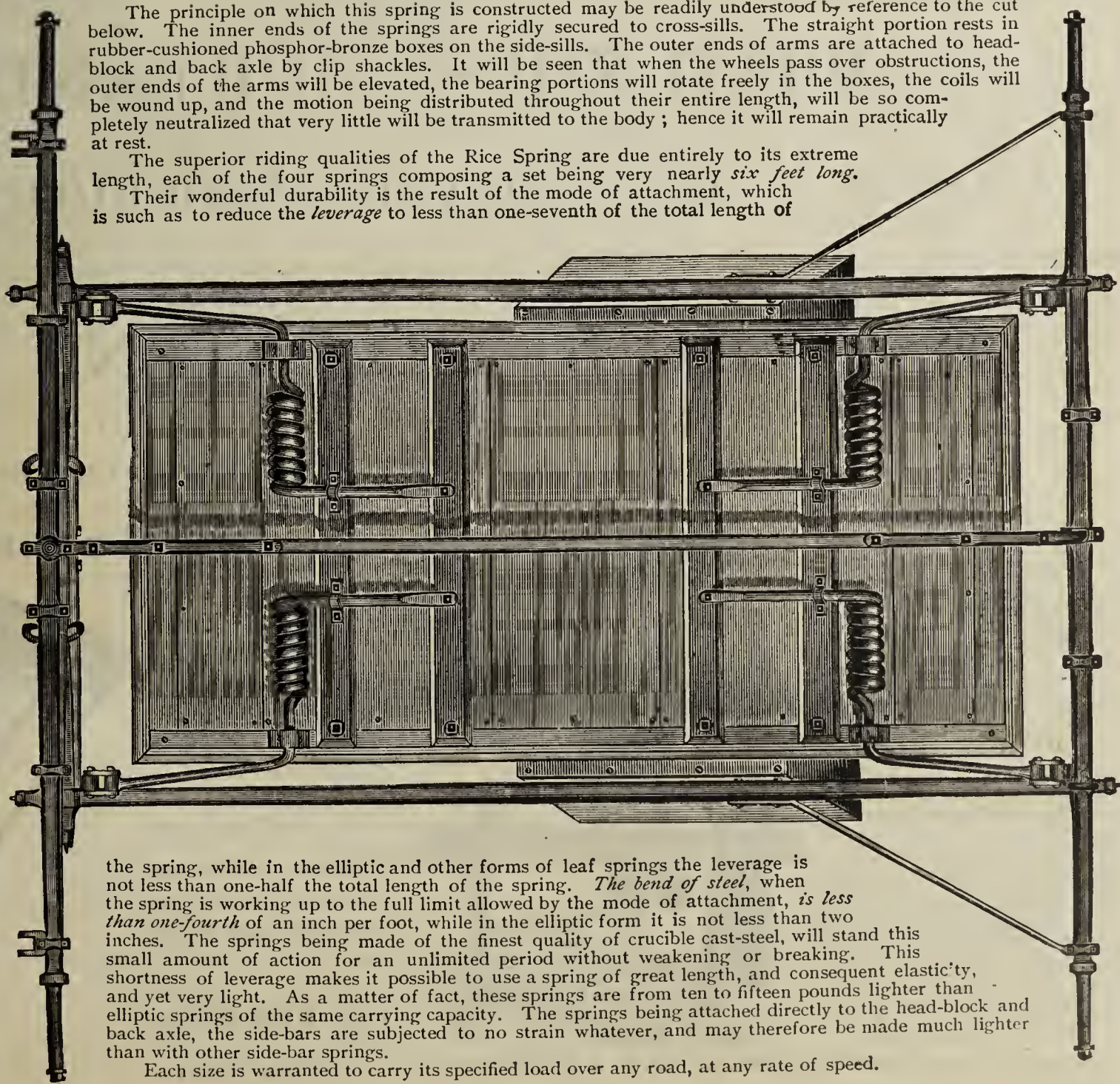
WM. & HARVEY ROWLAND,
Frankford, Philadelphia.

HENEY & LACROIX,
Montreal, Canada.

The principle on which this spring is constructed may be readily understood by reference to the cut below. The inner ends of the springs are rigidly secured to cross-sills. The straight portion rests in rubber-cushioned phosphor-bronze boxes on the side-sills. The outer ends of arms are attached to head-block and back axle by clip shackles. It will be seen that when the wheels pass over obstructions, the outer ends of the arms will be elevated, the bearing portions will rotate freely in the boxes, the coils will be wound up, and the motion being distributed throughout their entire length, will be so completely neutralized that very little will be transmitted to the body; hence it will remain practically at rest.

The superior riding qualities of the Rice Spring are due entirely to its extreme length, each of the four springs composing a set being very nearly *six feet long*.

Their wonderful durability is the result of the mode of attachment, which is such as to reduce the *leverage* to less than one-seventh of the total length of



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Each size is warranted to carry its specified load over any road, at any rate of speed.

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FINE COACH VARNISH.

PRICE-LIST.

	Per Gal. in Sealed Cans.
Pale Durable Body Finishing, . . .	\$5.50
Best Pale or Coach Finishing, . . .	5.00
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Black Coloring Rubbing, . . .	4.00
Enamel Top Finish, . . .	4.00
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No. 1 Coach, . . .	3.00
Reed's Improved Coach Japan, . . .	1.75
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OFFICE:

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FINE RAILWAY VARNISH.

PRICE-LIST.

	Per Gal. in Sealed Cans.
Railway Car Finishing, Outside, . . .	\$5.50
Railway Car Finishing, Inside, . . .	4.50
Locomotive Finishing, . . .	4.00
Railway Car Rubbing, Outside, . . .	4.50
Railway Car Rubbing, Inside, . . .	4.00
Locomotive Rubbing, . . .	4.00
Improved Car Japan Dryer, . . .	1.75
London Marine (for stacks), . . .	1.75
Color Mixing Varnish, . . .	1.50
Pale Oil Finish, Inside, . . .	3.50
Dark Oil Finish, Inside, . . .	2.50
White Hard Spirit Varnish, . . .	4.00
Gold Size Japan, . . .	3.50
Reed's Car Primer and Filler, . . .	2.50

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We put up our Varnishes in square cans, sealed, of One, Two and Five Gallon capacity, and make no charge for cans, cases or cartage. When ordered in Barrels or Half Barrels, we make a reduction of 20 cents per gallon.

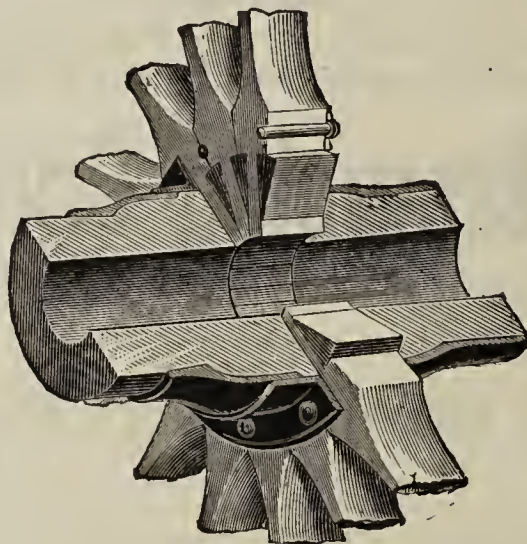
JAMES L. HAVEN, President.

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Improved Sarven Wheels,

This is the **OLD RELIABLE SARVEN WHEEL** in every particular, with the addition of the **ROUSE HUB BANDS**, tightly pressed on the hub, back and front of the flanges; those on the back extending from a point under the back flange to the back end of the hub, and those on the front extending from a point under the front flange to the point where it abuts closely against the "Point Band" when in position.

It makes a neat and stylish finish, is light, and as the bands are separate from the flanges, they can be pressed on much tighter than the extended flange. They fit closely and make a water-tight joint.



The advantages are a thorough protection of the hub from the action of the weather, and from decay.

The front of the hub is protected from damage by collisions in crowded streets.

The back end is covered, and the expense of butt bands is saved to the manufacturer.

It is an invaluable improvement on **ICE WAGONS, WATER SPRINKLERS, MILK WAGONS, FIRE APPARATUS, etc.**, and for all vehicles transporting passengers or freight on the Plains of the West and South-West, and in the Mountains, it is specially adapted to the heavy freighting over rough roads.

WITH ROUSE HUB-BANDS,

(PATENTED AUGUST 20th, 1878.) MANUFACTURED BY

Royer Wheel Company, Cincinnati, Ohio.

ROUSE BANDS WILL BE SUPPLIED ON THE "A," "B," AND "C" GRADES OF SARVEN WHEELS ONLY, AND WITHOUT EXTRA COST. It is intended that the presence of these Bands shall be a Guarantee of Quality to the purchaser.

WE ALSO MANUFACTURE **STODDARD PATENT** AND PLAIN WHEELS.

Branch House, New-York Sarven Wheel Co., 101 Bowery, New-York City.

Agents for **KING'S PATENT SPRING WHIFFLETREE.**

BARNES'

Patent Foot and Steam Power Machinery. Complete outfits for Actual Workshop Business. Lathes for Wood or Metal. Circular Saws, Scroll Saws, Formers, Mortisers, Tenoners, etc., etc. Machines on trial if desired. Descriptive Catalogue and Price-list, Free.

W. F. & JOHN BARNES,
No. 2054 Main-st., Rockford, Ill.

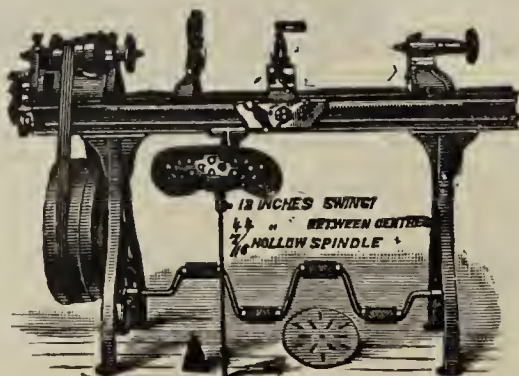
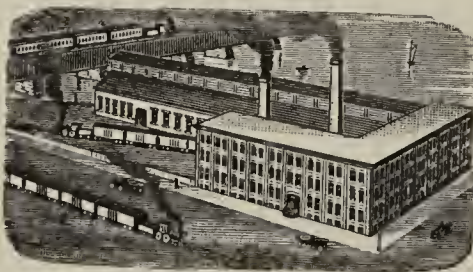
FOR BUSINESS IN THE WORKSHOP.

READ WHAT CHAS. FOLTER, OF BOSTON, MASS., SAYS:—I thought you would like to know how the No. 6 Lathe works that you sent me. It is just as good, and better than you represented it to be.

Your velocipede foot-power is the best foot-power I ever saw. I have not seen as good a lathe for the money, in Boston—with both rod and screw feed.

O. C. HILL, M. E. BLACKFOOT, IDAHO:—I sat at the lathe steadily for 11 hours, cutting off and threading 1½ steam pipes. Those who saw the work declared it equal to a 15-hour job in a machine shop. Taken with special regard to the velocipede foot-motion, I consider the lathe without an equal.

Address, No. 2054 Main-st., Rockford, Ill., W. F. & John Barnes.



The Best Top in the Market.

The attention of the Trade is asked for our superior make of goods, including

CARRIAGE TOPS
CUSHIONS,
BACKS,
FALLS, etc.,

all of best material and thorough workmanship. Send for illustrated price-list.

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Stimson & Co. Mfrs of Coach AND Car Varnishes. 149 MILK ST. BOSTON MASS.



CRANDAL'S IMPROVED
Wagon Curtain
Patch.

Patented May 4th, 1880.
Re-issued Apr. 3d, 1883.

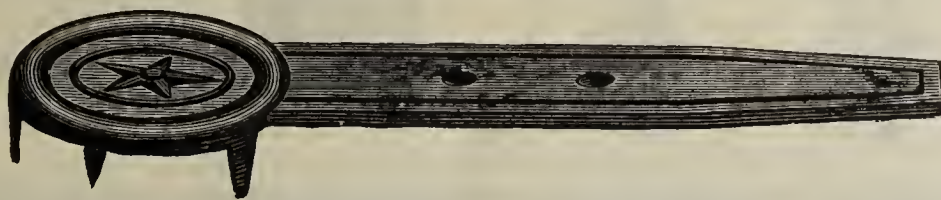


Patent Metal Buckle Loops.

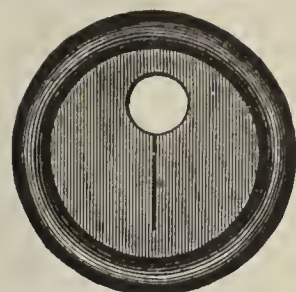
GRANDAL, STONE & CO.,
BINGHAMTON, N. Y.,

Manufacturers of a Fine Line of

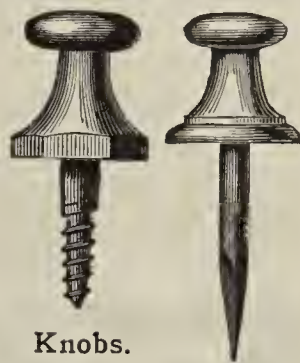
CARRIAGE TRIMMINGS.



Crandal's Patent Curtain Strap.



Knob Eyelets, with Leathers.
Patented Dec. 3d, 1872.
Re-issued Sept. 16th, 1879.
Patented May 4th, 1880.
Re-issued Apr. 3d, 1883.



Knobs.



Highest Award for Fine Wheels at Cincinnati Exposition, 1884 (Silver Medal).

FINE

SARVEN
PATENT

Band Hub and Plain

WHEELS,

Manufactured from Choice

Second-Growth Timber,

BY

C. C. Anderson & Co.,

GALION, OHIO.

Send for Price-list.

The Strongest and Easiest-
riding Spring made.

The OLIN Spring.

Patented August 30, 1881.
Reissued Aug. 21, 1883.

EVERY person, without exception, who has used these springs, pronounces them *head and shoulders* above all others now known to the carriage trade.

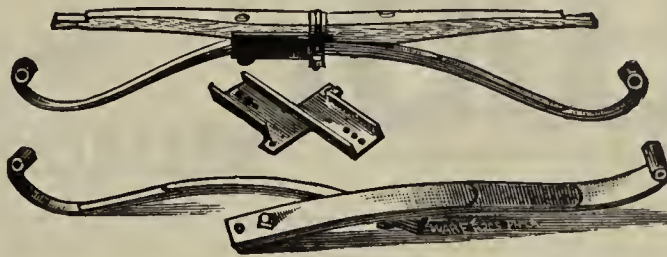
Here are a *few* points of advantage we claim:

First: They are adjustable, and can be fitted to all sizes of gearing or body, having a variation of four (4) inches (two inches increase or reduction in length from standard size, at which they are coupled at the factory).

Second: They carry the body in a better position, when unevenly loaded, than any flexible spring now before the public.

Third: Their simplicity of application enables any one, even

.. FOR SIDE-BAR VEHICLES. ..



an unskilled mechanic, to adjust them by simply changing the bolts in the crabs.

Fourth: By the manner of attaching the crabs in the center, we avoid all forward motion of the body upon striking obstructions, which with other Side-bar Springs, sometimes causes a breakage of spring-bar.

It would seem impossible to combine in any style of springs, greater strength, neatness, durability, ease of motion and application than we claim is to be found in ours, and we feel confident that it will be to your advantage to order a sample set, knowing full well that other orders will follow after a trial.

T. D. OLIN & CO., 181 West 4th-street, CINCINNATI, OHIO.

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F. W. DINKELMAN, Sec'y.

The Queen City Forging Co.,

MANUFACTURERS OF

Carriage Hardware,

INCLUDING

Fifth Wheels, Shaft Couplings,



King Bolts and other
Drop Forgings.

Catalogue & Price-lists on application
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Get the Best.

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150 North Third Street,

PHILADELPHIA,

Manufacturer of every description of

Coach and Carriage

BRUSHES,

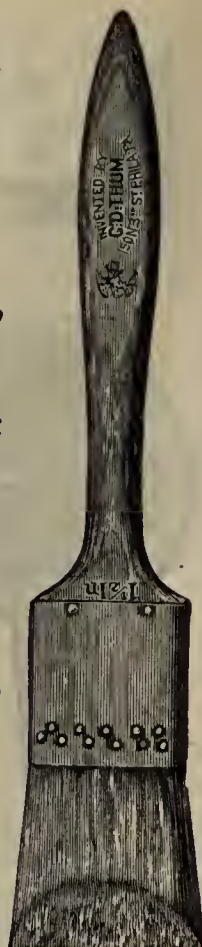
ALSO

Paint and Sash Tools,

Fitch, Badger and Camel-Hair Var- nish (extra thick and strong),

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The Celebrated THUM HALF-ELASTIC
VARNISH-BRUSH is warranted to stand
until it is worn out. It can be used for finish-
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last longer and carry more varnish than any
other brush. Ask your dealer for them, or
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THE LARGEST AND MOST COMPLETE ASSORTMENT
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660.—Grand Phaeton.

With or without our Adjustable Canopy.



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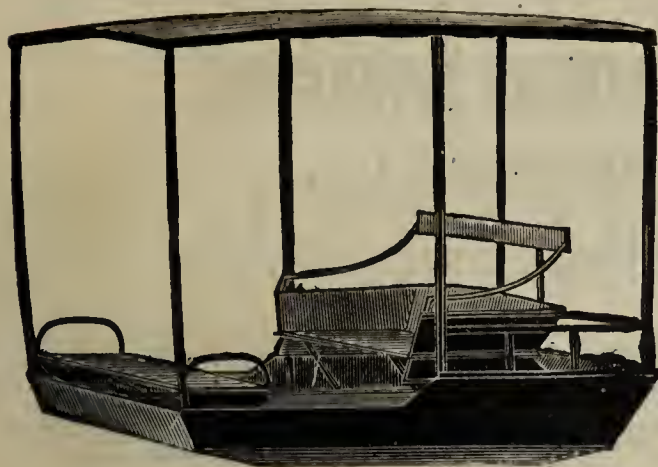


The Soule Patent Combination

SIDE-BAR SPRING,

and all other Fine Springs, made by

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Jagger Wagon Body.—Design No. 30.

This improved Jagger Wagon is furnished with working irons for seats, and has grown deservedly popular, as it forms both a business wagon and family carriage.

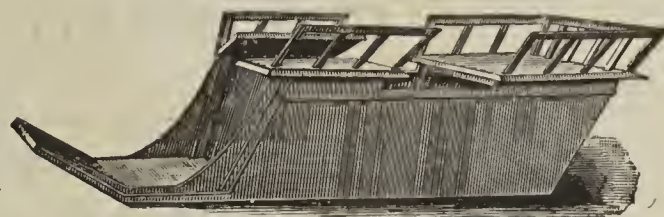
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CARRIAGE-PARTS.

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CARRIAGE BODIES
FOR THE TRADE.

First-class Materials. Low Prices. Easy Terms.
Superior Workmanship.

Send for our new Descriptive Catalogue and Price-list, containing Illustrations of our different styles of Bodies and Carriage-parts. *Prices much reduced from former lists.*



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The **Quality** of our **Bow Sockets** will be maintained, whether prices are or not. We assure buyers of our Sockets that they are as **strong and as well finished** as when they cost double the present price, and every set has the strip of steel welded within back tube.

Our **Connecting Rods** are sold with guarantee against the claims of any patent ante-dating ours.

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The Dalzell & Ives Wrought Box.

A PERFECT BOX FOR CARRIAGE AXLES.

This is the Only Box that can be, and is made Absolutely Hard, with a Perfect Bearing Surface for the Axle.

IT IS LIGHTER AND STRONGER THAN BOXES MADE FROM ANY OTHER METAL.

These Boxes have been in continuous use for ten years by builders of Fine Carriages, and at the present time are the *only* available Box for first-class work.

EVERY BOX FULLY WARRANTED.

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Hickory Rims, Shafts and Spokes,
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Steel's Patent

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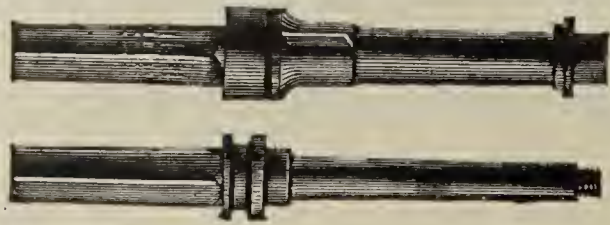
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Clarkson Patent Springs
FOR TWO-WHEELERS,
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WHIFFLETREES OF ALL DESCRIPTIONS.

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Largest Mfg. for Export in the U. S. A.

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Manufacturers of

Fine Carriage Springs.

First quality Springs, of every style and pattern, made to order.

Side-bar Wagon Springs a Specialty,

INCLUDING AMONG OTHERS THE

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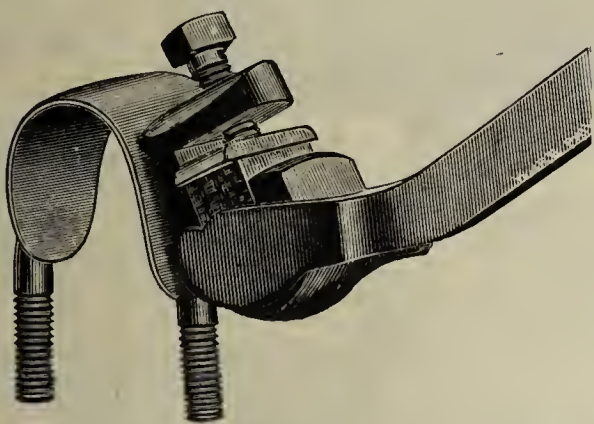
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WITH FLANGED SHAFT EYE.



Finished forged complete, with
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This Coupling has been in use for 5 years, has given the best satisfaction, and proven the best Coupling ever placed in the market.
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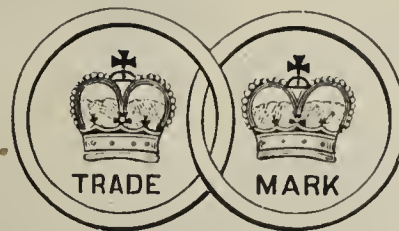
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Catalogues and Price-list on application.

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After a struggle of over three years, during which time the records of European and American patents have been thoroughly searched for information regarding "Cross-Springs," and a thorough search made through this country, at an enormous cost, to find all devices pertaining to "Cross-Springs," with a view to defeat my patent, all search has proved fruitless, and my patents have been sustained in every particular in the U. S. Courts, by his Honor, Judge Sage, on the 9th day of Dec., 1884, as shown by decree published in the January number, page 715, this journal.

Now, therefore, I warn all Spring and Carriage Manufacturers, Dealers and users, against infringing my patent "Cross-Springs," as I shall protect my rights to the fullest extent of the law.

The following Spring Makers are licensed by me to make and sell my Springs, and are under contract to manufacture first-class Springs and warrant them in every particular.

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SPRING PERCH CO., Bridgeport, Ct.
TOMLINSON SPRING CO., Newark, N. J.
THE CHICAGO SPRING CO., Chicago, Ill.
D. W. SHULER, Amsterdam, N. Y.
CINCINNATI SPRING CO., Cincinnati, O.
FOREST CITY SPRING WORKS, Cleveland, O.

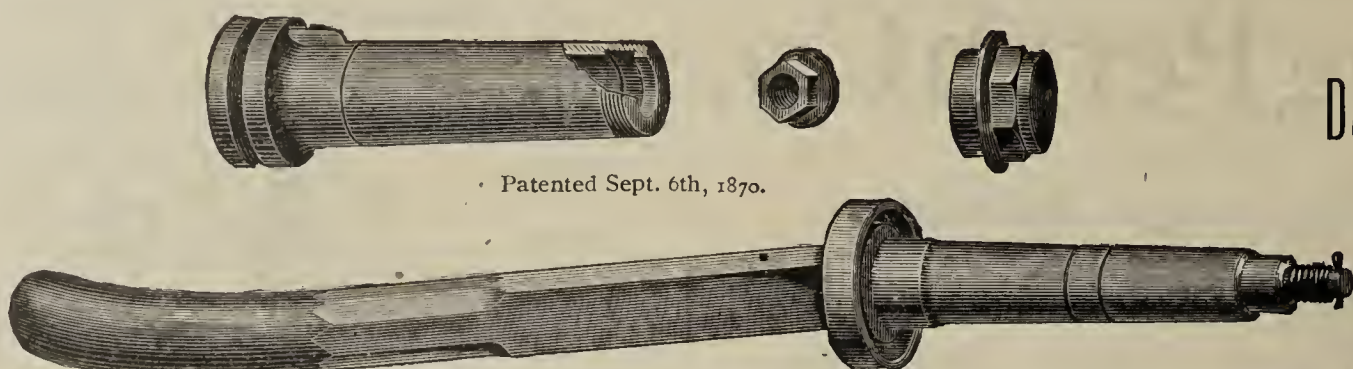
ST. LOUIS SPRING CO., St. Louis, Mo.
WOOD, SMITH & CO., Fort Plain, N. Y.
WM. & HARVEY ROWLAND, Frankford, Phila.
HOUSTON HAY, Coshocton, O.
R. TOMLINSON'S SPRING AND AXLE WORKS, Bridgeport, Ct.
WENTWORTH SPRING AND AXLE CO., Gardiner, Maine.
PENN & LEE, Syracuse, N. Y.
KEYSTONE SPRING WORKS, Philadelphia, Pa.

CANTON SPRING CO., Canton, O.
LIGGETT SPRING & AXLE CO., Limited, Pittsburgh, Pa.
CLEVELAND SPRING CO., Cleveland, O.
KALAMAZOO SPRING AND AXLE CO., Kalamazoo, Mich.
DETROIT STEEL AND SPRING WORKS, Detroit, Mich.
SMITH, SUTTON & CO., Pittsburgh, Pa.
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HENRY TIMKEN, Patentee, St. Louis, Mo.

Dalzell's Improved Collinge Axle.

Greatly superior in
all respects
to all other so-called
Half Collinge
and
Improved Collinge
Axles.



Patented Sept. 6th, 1870.

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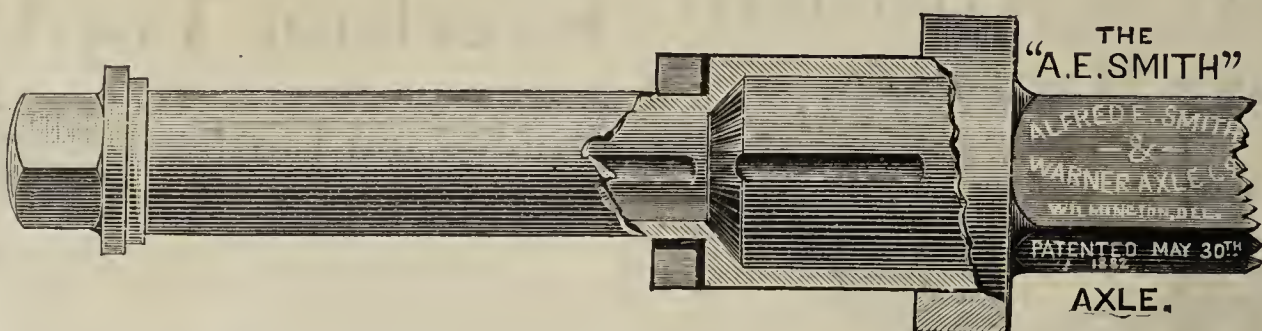
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Half-Patent and other styles of Axles, of Best Material and Workmanship.

THE "A. E. SMITH" AXLE.

Strongest,
Lightest-running,
and only Swell-shoulder Axle
having a
Perfect Bearing
the Entire Length
of Arm.



WITH NUT ON THE ARM.

PRICES
UNEQUALED,
WITH
QUALITY
A
CONSIDERATION.

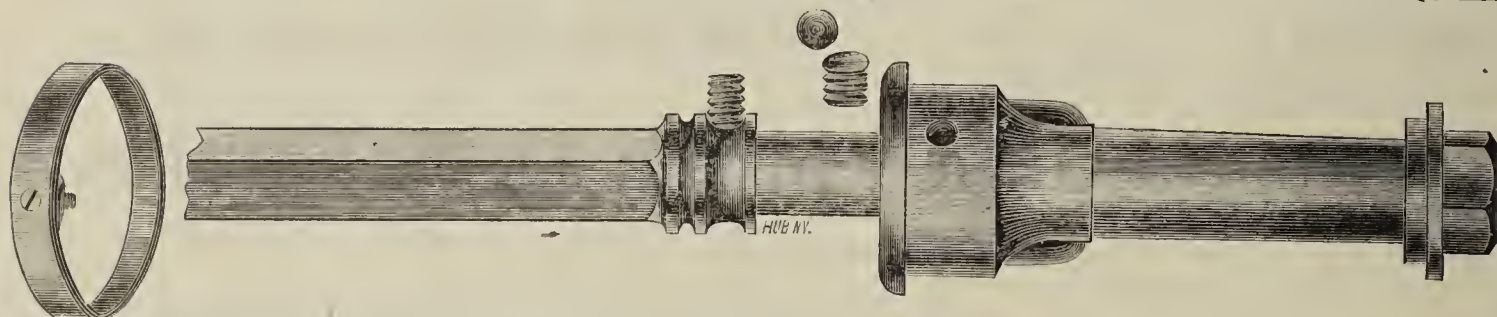
SEND FOR SUPPLEMENTAL PRICE-LIST AND CIRCULAR OF THE

Alfred E. Smith & Warner Axle Co., MANUFACTURERS OF Vehicle Axles of Sterling Quality.

WILMINGTON, DELAWARE.

"A. E. Smith." "Carswell and Vandenbraak."

Patented—EUREKA AXLE.—July 8, 1884.



THIS Company offers to the public a Carriage Axle destined, we believe, to supersede all other Axles now in use. It is operated on an entirely new principle. The wheel is held on by a ball running around the Axle in a groove, the ball being held in place by a cup-shaped screw, as shown in cut above. This is NOT a ball BEARING Axle.

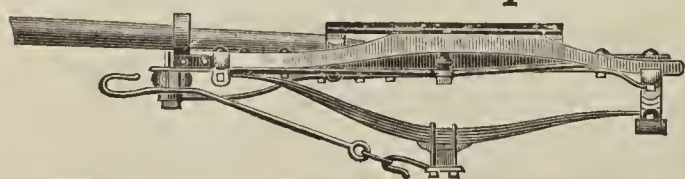
Its merits are: 1st. Absolute safety. 2d. Extra strong. 3d. Perfect cleanliness. 4th. No washers required. 5th. Noiseless. 6th. Less friction than any other. No shoulder or end friction.

7th. Will not heat. 8th. Does not require oiling oftener than one to three months. To sum it all up, it beats all others. They will soon be for sale by all the principal dealers in the country. Price-lists will be mailed to all interested parties in a few days.

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S. H. ATKINS, General Manager.

Side view of
Shaw's Patent



Draft-Equalizing, Portable Pole, Shifting Whiffletree
Platform Spring Gearing, made in the white, for the
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NATIONAL VEHICLE CO.,

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The HAMLIN Patent. A New Era in Cross Springs!

CROSS-SPRING
FOR SIDE-BAR VEHICLES.



PERSPECTIVE VIEW,

showing
separation of
the leaves
of spring, and
manner of
clipping.

This Spring has been fully tested, by the severest usage, for the past three years, with entire success. Among the advantages of these Springs over all others, are the following: No dead steel to carry; no more friction, with its accompanying slow movement and heavy rebound, as these spring the entire length. Each part works independently of the other at the center, giving a soft, elastic movement, free from the short, chopping motion, rebound and side-roll so prevalent in all other Cross Springs; making the G. B. HAMLIN CROSS SPRING the best that has yet been produced, as the body can be set as low as the Brewster

Springs sold by the set, with Shackle and Royalty included.

As we are the only Company licensed by the Patentee to manufacture and sell these Springs in the United States, all others are infringements and will be held accountable by said Patentee. DISCOUNTS GIVEN ON QUANTITIES.

R. Tomlinson Spring and Axle Works, Bridgeport, Conn.

Established 1839, and in continuous business since that time.

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ARTISTS' OIL COLORS IN TUBES.

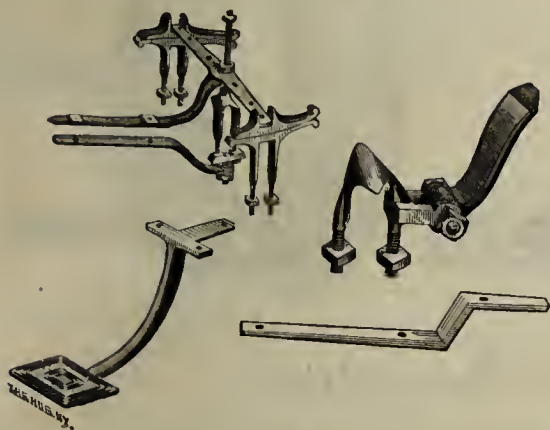
Importers of Carriage-makers' Materials of every description.

Drop Perch Gear Irons.

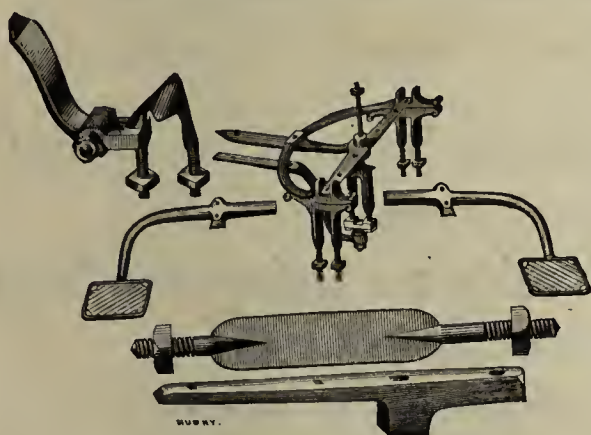
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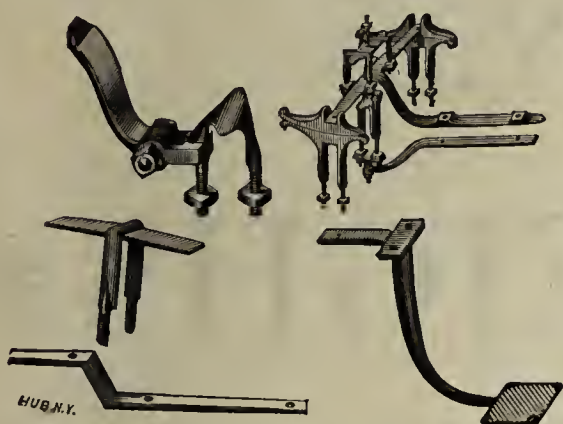
Set No. 1.—For Single Perch.



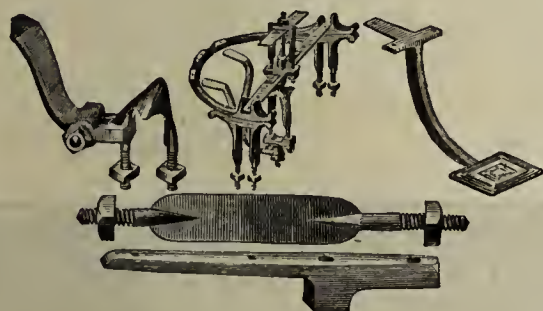
Set No. 2.—For Penoyer and other Side-Spring Gears. Single Perch.



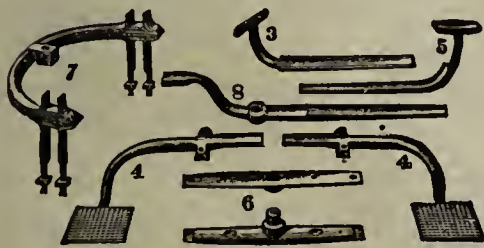
Set No. 3.—For Single Perch.



Set No. 4.—For Brewster and other Double Perch Gears.



Timken Gear Irons.



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We call the special attention of the Carriage Trade to our IMPROVED Substitute for Leather.



Silver Medals for Best Substitute for Leather awarded at Cincinnati and Louisville Expositions, 1883.

The goods cannot be distinguished from real leather, are impervious to water, not affected by heat or cold, and will not crack, rub or peel off.

These Qualities we Fully Guarantee to every Purchaser.

Since its introduction to the Carriage Trade, it has proved its durability by the test of actual and continued use on vehicles, and, as a consequence, the demand for it has been steadily increasing. It is now used and approved by the largest manufacturers.

It is Beautiful in Appearance, Durable, and Low in Price,
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Particular Attention is directed to our

New Curtain Stock,

designed for Back and Side Curtains. It is an all-wool material, showing a perfect cloth finish on one side, and coated with our Substitute for Leather on its back, thus making a Cloth-lined Curtain in one piece.

Send for samples of this New Material, and of our Substitute for Leather, to

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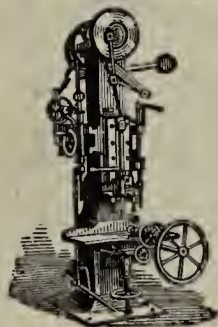
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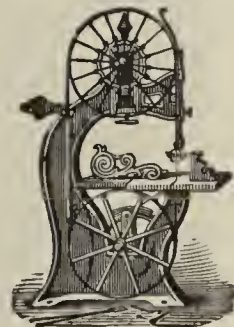
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Patent Wood Working Machinery

FOR

CARRIAGE BUILDERS, WAGON MAKERS,

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EMBRACING MACHINES FOR

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Spoke Tenoning,
Spoke Driving,
Spoke Throating,
Spoke Facing,
Felloe Bending,

Hub Mortising,
Hub Boring,
Hub Turning,
Felloe Planing,
Felloe Rounding,
Felloe Sawing,

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Band and Scroll Saws,
Rip and Cross Cut Saws,
Re-Sawing Machines.

Automatic Spoke Throating, Tenoning and Mitering, Hub Mortising and Boring Machines.

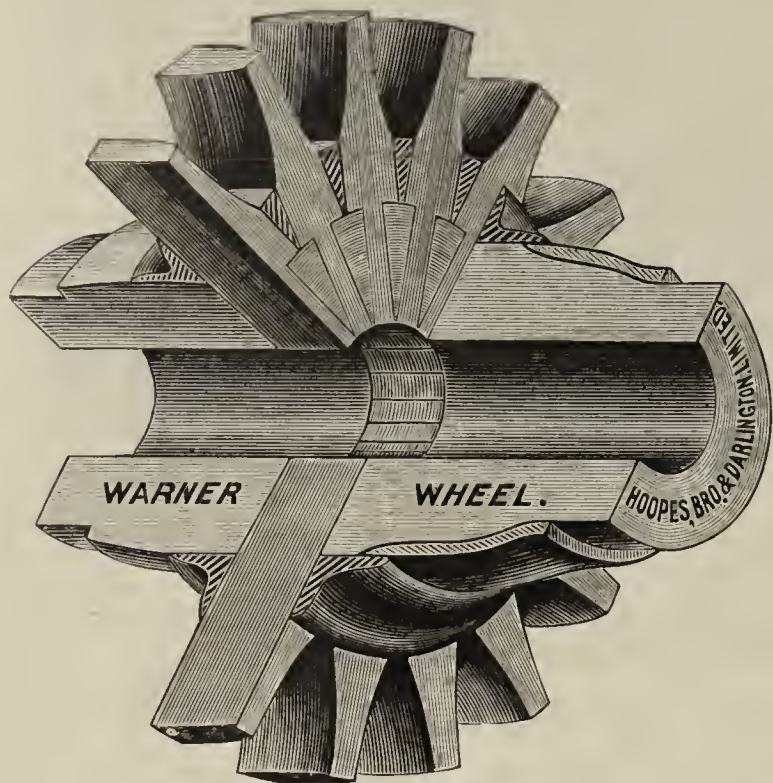
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D. L. LYON, Sec'y.

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Warner Wheels,
WITH ROUSE BANDS.



THE BEST AND STRONGEST WHEEL
IN THE WORLD.

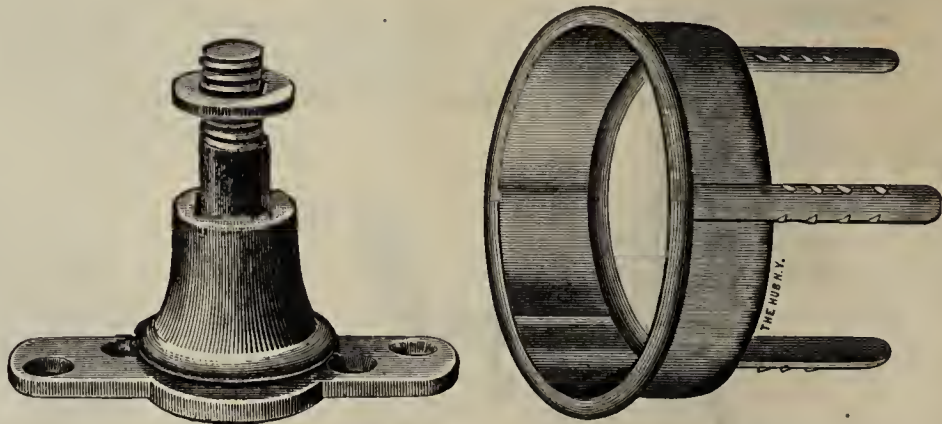
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W. I. ATWOOD & Co.,

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MANUFACTURERS OF

Fine Carriage Mountings



SAWYER TOP PROP.

CROWN PRINCE BAND.

Our Specialties:

The Crown Prince Band, Sawyer Top Prop; and Shaft
Tips, Yoke Tips, Pole Crabs, Name-Plates.

Send for new Illustrated Catalogue.

The Edward Storm Spring Co., Limited,

MANUFACTURERS OF

The Edward Storm Side-bar Springs and Gears,

POUGHKEEPSIE, N. Y.

Catalogues, Cuts, Description and Prices upon application.

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If you are in any way interested in sleighs it will pay you to correspond with me, as I have original designs
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in from 4 to 10 hours
at a cost of from
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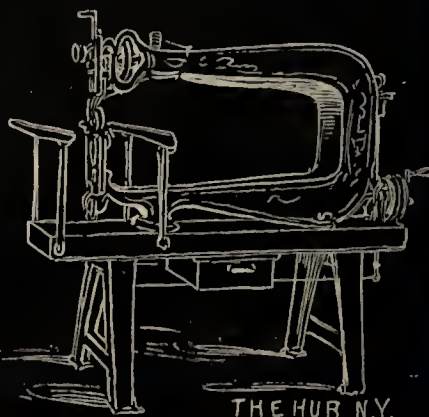
CARRIAGE MAKERS,
USING THE
ELLIOTT DASH STITCHING MACHINE

SAY IT IS THE MOST VALUABLE MACHINE
EVER USED IN THEIR FACTORY.

YOU WILL FIND IT SO, TOO.

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The Elliott will stitch the
same dash - in from 15 to 45 min's
at a cost of from 5 to 15 cts,
AND DO IT BETTER.




THE HUB N.Y.



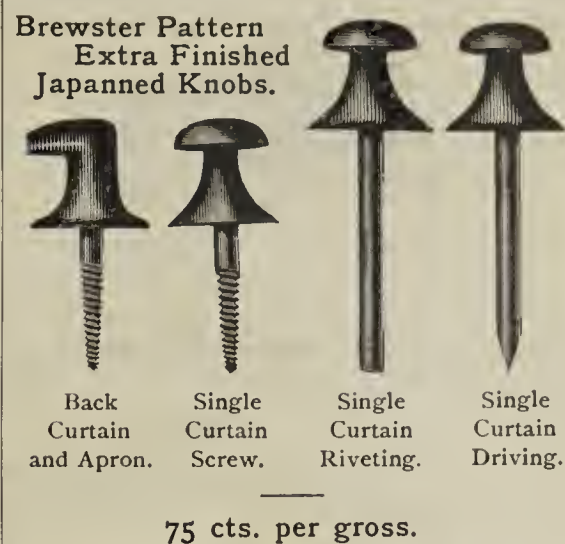
Per Doz.
 Road Wag'n, 6 in. \$3 50
 Buggy, 6½ inches, 3 50
 Phaeton, 7 inches, 4 00
 Coach, 7¼ inches, 4 00
 Sleigh, 12 inches, 5 00
 Packed ½ doz. in a box.

Patent-Leather Sleigh
 Sockets, 12 inches.
 Special lengths to order.
 Beaded or Plain
 Pattern.

Beaded Socket. Beaded Pattern.

A. S. Sherwood,
 DEALER IN
CARRIAGE  **MATERIALS.**
 1546 BROADWAY, Near 46th-st.,
 Established 1879. **NEW-YORK.**
 TELEPHONE CALL—39th-st., No. 273.

Brewster Pattern
 Extra Finished
 Japanned Knobs.



Back
Curtain
and Apron. Single
Curtain
Screw. Single
Curtain
Riveting. Single
Curtain
Driving.

75 cts. per gross.

S. N. Brown & Co.
Rayton. O.

MANUFACTURERS WHEELS, HUBS, SPOKES AND BOWS.
 ESTABLISHED 1847.

A Novelty in FOUR-PASSENGER JOBS.

PATENTED.

Fashion Plates Nos. 91 and 92, in February "Hub."

We wish to call attention of the trade to a long-neded improvement in Four-passenger work which we have just brought out, having an auxiliary seat for children or baggage. This seat when not in use is entirely out of sight; when in use, the front seats thrown forward four inches, to give the additional room required. It is simple, and fills the place of a Six-passenger job. They are equally desirable in Coupé-Rockaways (without division front).

We also put the auxiliary seat in Depot and other Wagons, making the best Six-seated Wagon ever built, without enlarging the body.

We sell them toned, ready for paint and trimming, or fully finished.

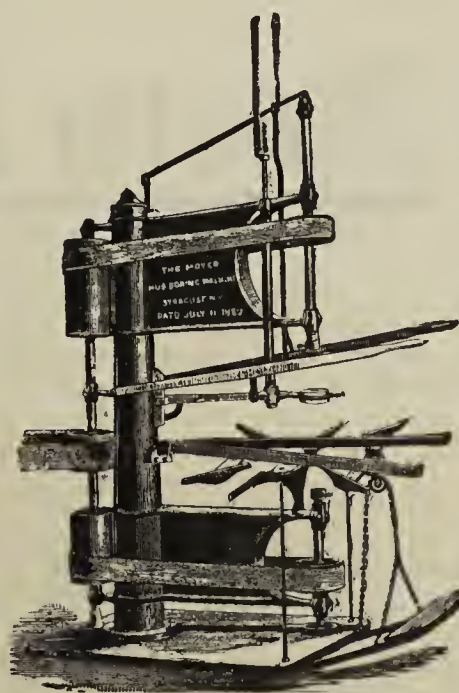
F. A. BABCOCK & CO.,
 Amesbury, Mass.

THE MOYER PATENT Hub Boring and Boxing Machine

MANUFACTURED BY

H. A. MOYER, Syracuse, N. Y.

SYRACUSE, N. Y., Sept. 22, 1882.
 H. A. Moyer, Syracuse, N. Y.:
 DEAR SIR—We have for some time been using one of your Hub Boring Machines, and it is giving us the most perfect satisfaction. Before purchasing we thoroughly informed ourselves as to the merits of the various boring machines, and are fully satisfied that we have the most rapid as well as the most accurate machine in use. Yours truly,
 BRADLEY & COMPANY.



THE H. H. BABCOCK BUGGY CO.
 WATERTOWN, N. Y., January 18th, 1883.
 H. A. Moyer, Esq., Syracuse, N. Y.:
 DEAR SIR—We have been using one of your Hub Boring Machines for some little time now, and take great pleasure saying to you that it is worth more to us than any other machine we have in our factory. We are enabled to do a great deal of work with it, and all of our work must necessarily be done very well with it, as it seems to be perfect in every detail. We will gladly recommend it to any one that you wish to refer to us, as it deserves a world-wide reputation. Truly yours,
 GEO. H. BABCOCK, Treas.

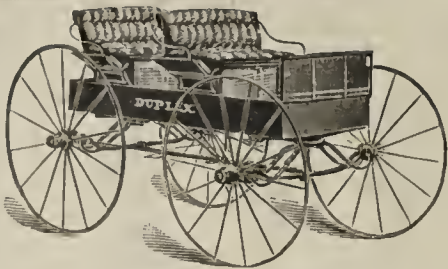
This machine will center, hold, bore and counter-bore FOUR buggy wheels *complete* for boxes and nuts

In Thirty Seconds!

I claim that a set of boxes can be set in good shape by this machine, at

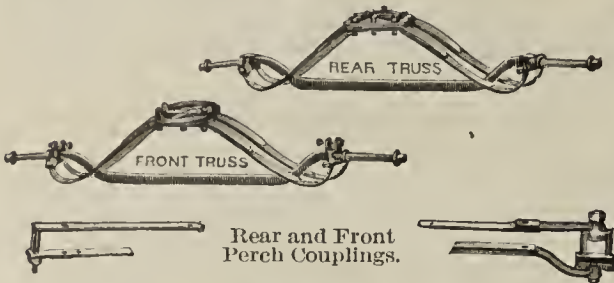
An Expense of two Cents!

CATALOGUES AND PRICES ON APPLICATION.



Our Four Seat, "DUPLEX," No. 6.

Following are the detached parts as we furnish same for the "Duplex" Gear.

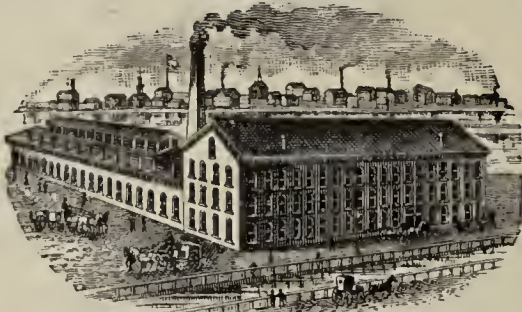


Axle Stay Ends and Centres.

A NEW ERA
In Carriage Building.

THE "DUPLEX"

For all classes of business and pleasure vehicles.



Factory at Birmingham, Conn.

For Price-List of Gears and parts, address
C. W. SALADEE,
Birmingham, Conn.
Patentee and Sole Manufacturer for the U. S.



Light Delivery Express, No. 8.



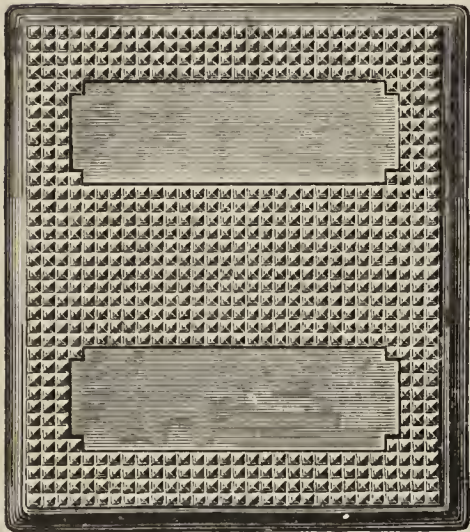
The "Duplex" Gear, complete.

The weight imposed is carried next the Hub, hence,
No "Springing" of the Axle.
The Springs are "Self-compensating," hence,
No Links to become loose and "Shaky."
The length of Springs secures requisite motion.
Carries the body as low as a Side-bar.
Attractive in style, and is,
Unsurpassed for its simplicity of construction.

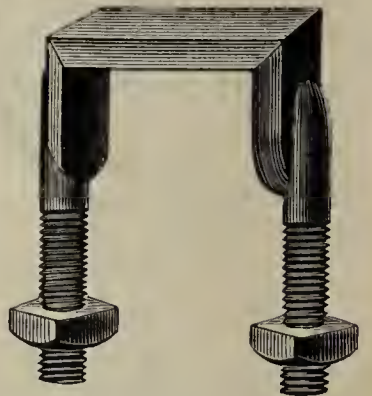
H. M. STRIEBY & CO., NEWARK, N. J.,

Manufacturers of **Drop Forgings**
FOR CARRIAGES.

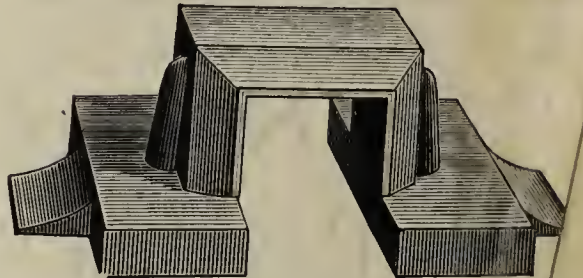
A Complete Line of Step Pads.



PANEL PATTERN.
(Patent applied for.)



COACH SPRING CLIPS



COACH AXLE CLIPS.

Silvester Patent Tire

IS A UNIVERSAL FELLOE CLAMP.

The OPEN-HEARTH STEEL I manufacture this Tire from, is warranted to me to stand all the strain I claim for it. It is specially made for this use. It is tough, and cannot be broken, but will bend cold in any shape. It will stand a strain of 60,000 pounds to the square inch.

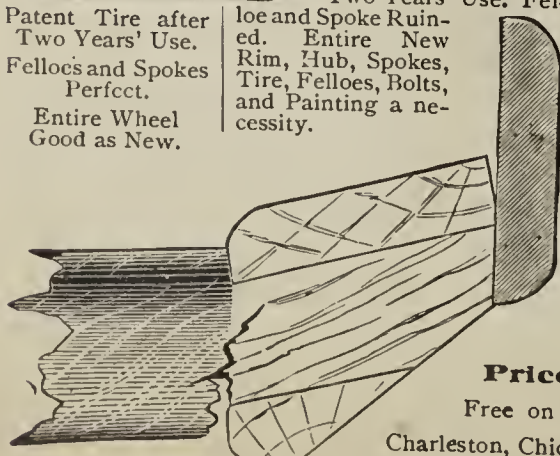
A FEW OF THE ADVANTAGES THIS TIRE HAS

This Tire is a positive and absolute protection to the felloe. The vertical flanges inclose the felloe in such a manner as to prevent the tire from coming off; the use of screws and bolts being unnecessary. The lateral flanges which project outward beyond the felloes, protect the felloes from damage by railroad tracks, curb-stones, rocks, etc., which cannot wear the paint off or destroy the felloe. Both felloe and tire are benefited by being left without bolt-holes.

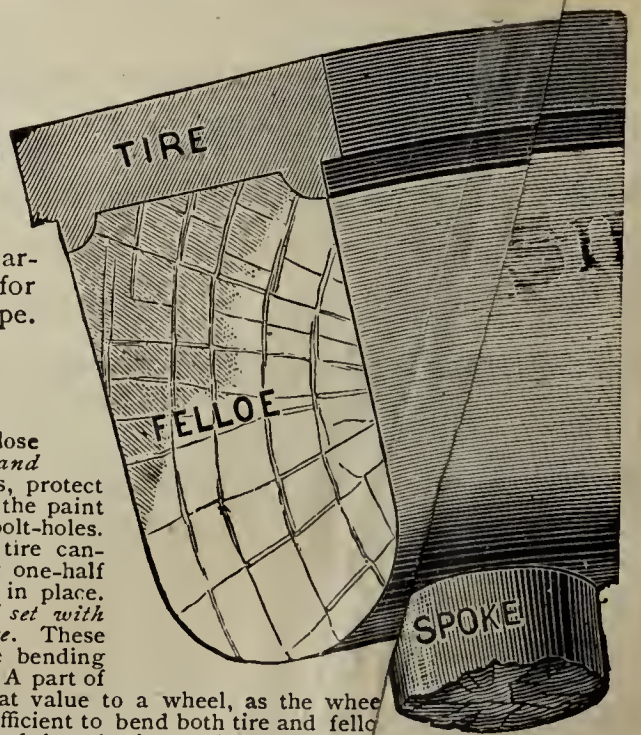
Common Tire after Two Years' Use. Fel-

loe and Spoke Ruined. Entire New Rim, Hub, Spokes, Tire, Felloes, Bolts, and Painting a necessity.

Patent Tire after Two Years' Use. Felloes and Spokes Perfect. Entire Wheel Good as New.



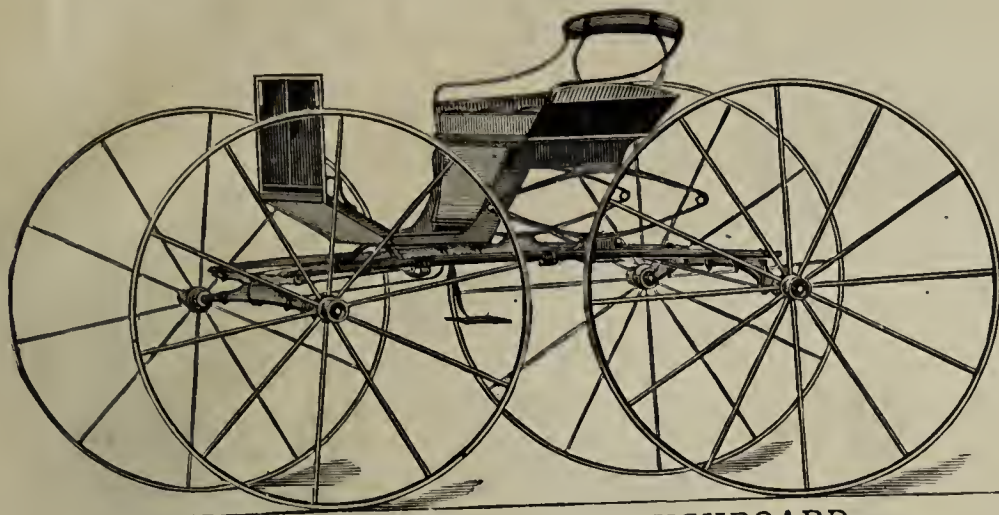
The felloes cannot split, as the flanges bind it together. The tire cannot slip off if the felloe shrinks, and does not need resetting one-half as often, by means of the felloe being constantly protected and in place. The wheel is strengthened sideways by the flanges. A wheel set with this tire will outlast three wheels with common bar-iron hoop tire. These flanges also strengthen the tire and felloe, and prevent the felloe bending inwards between spokes. It gives the tire a light appearance. A part of the edge is level with and painted like the felloe. It is of great value to a wheel, as the wheel cannot get out of shape, unless there is a tremendous strain, sufficient to bend both tire and felloe edgewise. To make a straight wheel, put this straight tire on, and the wheel must be straight and remain so, as it has the strength of the tire edgewise, combined with that of the felloe, to hold it in position. This Tire has great advantages over the common bar-iron hoop tire when necessary to reset it, as there are no bolts and screws to take out and replace, and the felloes are not ruined by boring four, eight or ten extra holes at every resetting. This Tire cannot be broken; neither frost nor rocks can break it. The metal is specially made to meet these requirements. This Tire can be set by any blacksmith in one-half the time of the common bar-iron hoop tire, by being welded, then expanded by heat, so the tire easily slips over the felloe. When cold, the job is complete. The steel welds like soft iron. In resetting there are no bolts to take out or replace.



C. B. CLARKE, 2021 Pine-street T. LOUIS, MO.

Price-list of Wheels with Silvester Pat. Tire. Width of Tire, 7/8

Free on board of Cars in St. Louis, Baltimore, Boston, Buffalo, Charleston, Chicago, Cincinnati, Cleveland, Galveston, Louisville, Memphis, Milwaukee, Mobile, New-Orleans, New-York, Philadelphia, Providence.	Price per Set per Yr.	A \$19 60	B \$17 15	C \$13 85	D \$13 00
" " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " "	20 70	18 15	14 85	14 00
" " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " "	22 00	19 45	16 10	15 25
" " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " "	29 00	27 00	23 60	19 75
" " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " "	34 00	30 35	25 95	23 65
" " " " " " " " " " " " " " " "	" " " " " " " " " " " " " " " "	40 00	35 90	34 80	32 55



WHITE'S PAT. PHAETON BUCKBOARD.

WE ARE THE SOLE MANUFACTURERS OF
White's Pat. Phaeton Buckboard
 for the United States. This Buckboard has NO RIVAL
 for Style, Finish, Neatness and Durability.

We also manufacture for the Trade,
**The Celebrated Storm Spring Buckboard
 and Buggies,**

Fine Leather-top Timken and End-spring Buggies, Two and
 Three-spring Phaetons; and we make a SPECIALTY of supplying
 the Trade with **Bodies, Gears and Carriage-Parts**
generally. Our work is equal to THE BEST.

CATALOGUES AND PRICES ON APPLICATION TO

The Youngstown Carriage and Wagon Co., Youngstown, Ohio.

Liggett Spring and Axle Co.,

LIMITED.

Springs and Axles for Coaches, Phaetons, Buggies, Wagons, etc.

LICENSED MAKERS OF

Timken's, Brewster's, Wilson's, Pennoyer's, and Groot's Patent Springs,

AND

Steele's Patent Sand Box and Rubber Cushioned Axles.

PITTSBURGH, PA.

A. M. EAMES & CO.,

MANUFACTURERS OF

**FINE CARRIAGE
 WHEELS,**

South Framingham, Mass.

SKINNER & SCOTT,

WHEELS

LYNN, - - MASS.



The Latest and Best.
MANNEER'S XXX POST DRILL
SELF FEED.

A newly designed machine for *Blacksmiths, Wagon-Makers and small Machine Shops.* Built with great care and best materials.

Can drill from $\frac{1}{8}$ to 1 inch hole true and square with bed-plate.

The frame is rigid and well proportioned. For convenience and great service it has no superior. The speed attainable is above the average. It runs easy and smooth. All parts interchangeable.

During a limited time this machine will be *sent on trial at a special low price.*

Write for terms and full description.

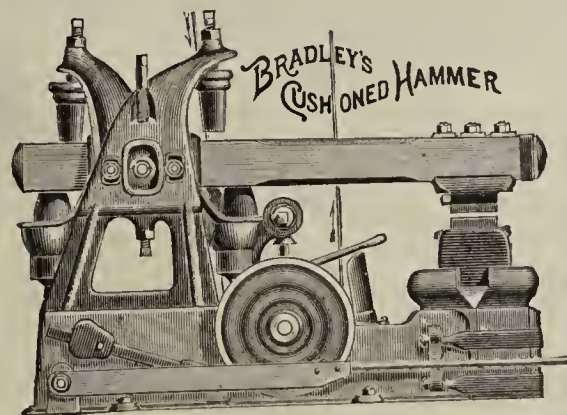
Don't purchase until you try this Machine.

Address: J. W. MANNEER,
 Rochester, N. Y., U. S. A.

Bradley's Cushioned Hammer

STANDS TO-DAY

Without an Equal.



Over 900 in Use,

and highly commended by numbers of Carriage Builders in whose shops they are to-day giving complete satisfaction.

It approaches nearer the action of the smith's arm than any other hammer in the world.

Heating Forges for Hard Coal or Coke.

(ESTABLISHED 1832.)

Bradley & Co., Syracuse, N.Y.

CATALOGUES,

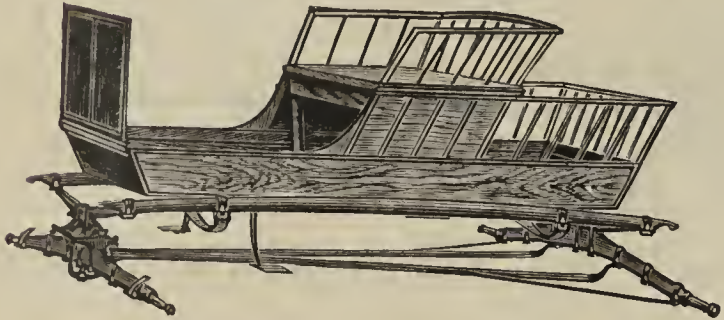
CHARTS, ILLUSTRATED CIRCULARS, etc., can be gotten up inexpensively by means of our large stock of finely engraved cuts, the use of which is free to those who order their printing of *The Hub*. Write for samples and prices of what you want.

"THE HUB," 323 Pearl-street, New-York City.

THE WILSON SPRING.

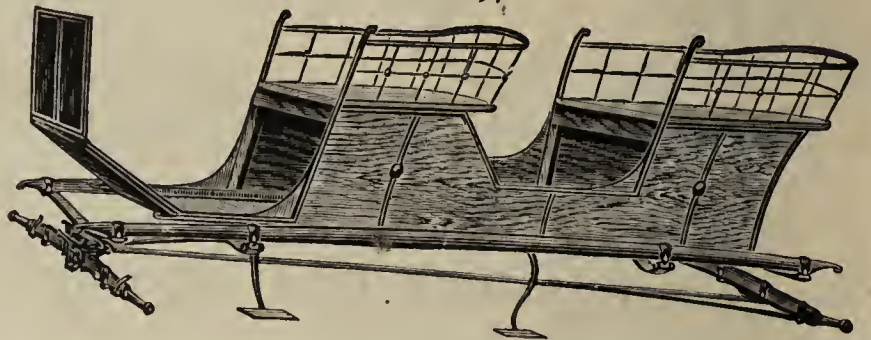


No. 190.



Hung with the Wilson Spring and their Patent Gear Irons. Everything first class. The easiest-riding and neatest-appearing job in the market.

No. 197.



This job is hung on the Wilson Springs. The finest-riding Surrey Spring ever used. *Write for Prices.*

C. R. & J. C. WILSON, 17, 19 and 21 Jones-st., DETROIT, MICH.

Wm. & Harvey Rowland,

FRANKFORD, PHILADELPHIA,

MANUFACTURERS OF

Oil-Tempered Elliptic, Side and C-Springs,

"Brewster Side-Bar Combination Patented" Springs,

TIMKEN PATENT CROSS-SPRINGS,

Reiff's Patent, Groot's Patent, Champion Spring, Carter Patent,
Saladee's Patent Crescent Spring for Side-Bar.

ALL WARRANTED OF THE BEST MATERIAL AND WORKMANSHIP.

Messrs. J. B. Brewster & Co. have authorized us to reduce the royalty on the "Brewster Side-Bar Combination Patented" Spring. Having made an arrangement with the Rice Patent Spring and Carriage Company to make the Rice Patent Spring, we shall soon be ready to fill orders.

The Dexter

Stands unrivaled for

Beauty,

Utility,

Comfort.



NEW STYLE DOCTORS' DEXTER QUEEN PHAETON.

Is the Synonym for

Durability,

Neatness,

Popularity.

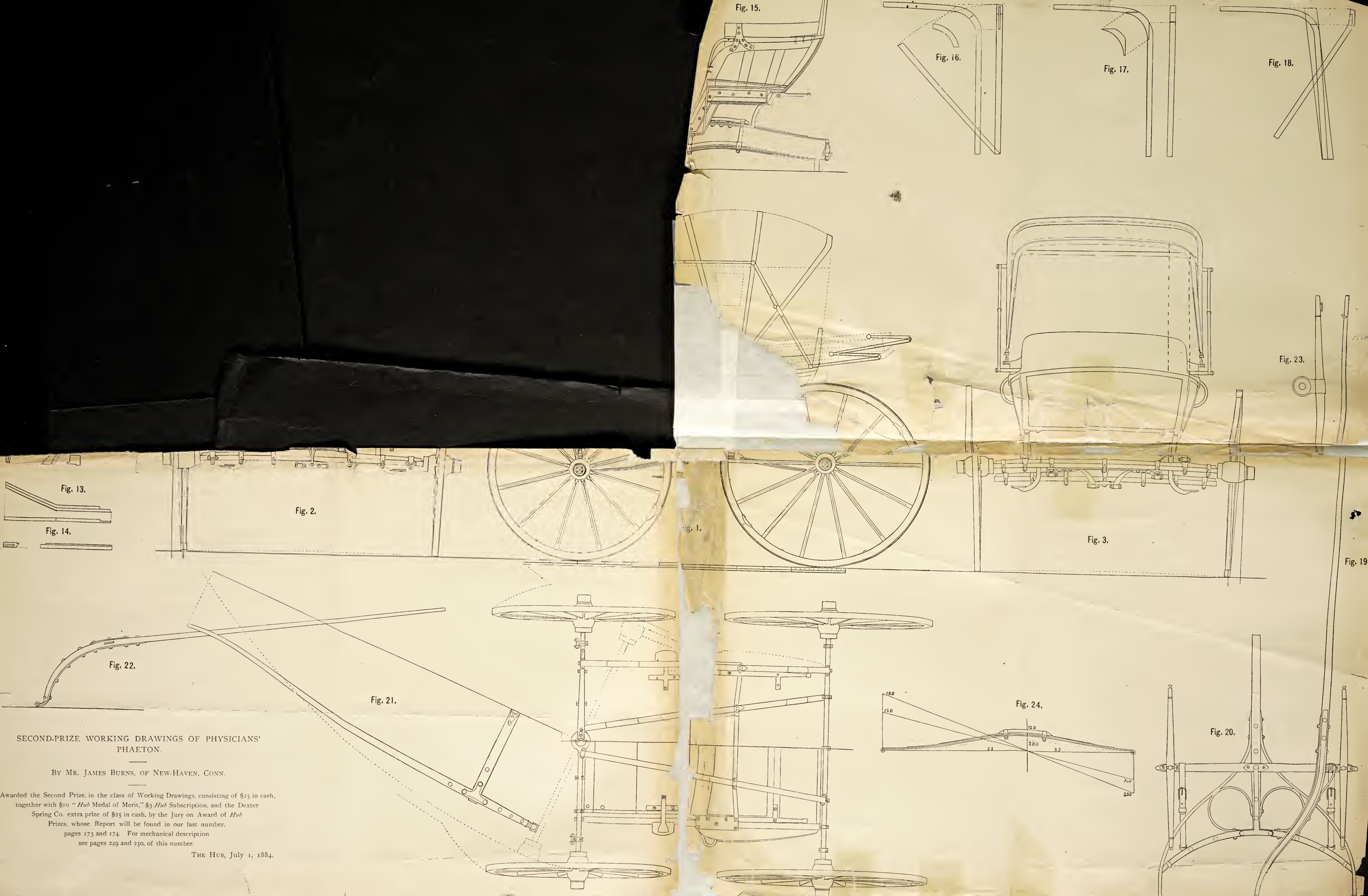
OUR SPECIALTIES: Dexter, Dexter Queen and Luxury **SPRINGS AND GEARS.**

We manufacture the best finished Gear to be found in any market in the World!

WORKS AT EDGEWATER, A. V. R. R. }
11 miles North of Pittsburgh.

DEXTER SPRING CO., HULTON, Pa., U. S. A.

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1
OF THE
UNIVERSITY OF ILLINOIS

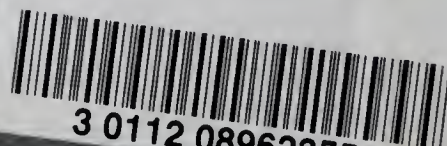


SECOND-PRIZE WORKING DRAWINGS OF PHYSICIANS' PHAETON.

BY MR. JAMES BURNS, OF NEW-HAVEN, CONN.

Awarded the Second Prize, in the class of Working Drawings, consisting of \$25 in cash, together with \$10 "Hub Medal of Merit," \$3 Hub Subscription, and the Dexter Spring Co. extra prize of \$25 in cash, by the Jury on Award of Hub Prizes, whose Report will be found in our last number, pages 173 and 174. For mechanical description see pages 249 and 250, of this number.

UNIVERSITY OF ILLINOIS-URBANA
Q. 684.05 HU C001 v.26(1884-1885)
Hub.



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